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The purpose of this study was to explore the effect of an educational intervention on attitudes and knowledge of emergency department (ED) nurses toward the older adult patient and their intentions to change their care behaviors toward this population in the emergency department. This study focused on: a) the effect of an educational intervention on attitudes and knowledge of ED nurses toward older adults, b) if improving ED nurses' knowledge of older adults influences their attitudes toward older adults, c) if an educational intervention will aid in identifying ED nurses' behavioral intentions to change how they care for older adults. Two instruments were used for this study: Kogan Attitude toward Old People tool and Palmore's Facts of Aging Quiz 1.

Sixty-seven ED nurses from five emergency departments in one hospital system participated in this study. A total of 44 ED nurses were in the experimental group and 23 ED nurses participated in the control group. Data analysis revealed that the educational intervention (geriatric workshop) did improve knowledge and positive attitude scores among the experimental group but overall the change was not statistically significant. Healthcare organizations must assure that ED nurses are provided with continuing education regarding older patient assessment and care to ensure they have the knowledge and skills to enhance quality patient outcomes in the ED setting.

# AN EDUCATIONAL INTERVENTION TO IMPROVE NURSING CARE OF GERIATRIC CARE IN THE EMERGENCY DEPARTMENT

by

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Approved by

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To my husband Tommy for his constant love and support throughout all of my educational endeavors. Without you none of this would have happened.

To my children Brad and Emily who have truly supported their Mom through many years of returning to school. I love you both so much!

Lastly to my late parents Pauline and Buddy Cadle who instilled in me that all things a responsible through God who strengthens me!

APPROVAL PAGE

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# CHAPTER I

# INTRODUCTION

The older adult population in the United States (U.S.) is growing faster than any other age group (Boltz, Parke, Shuluk, Capezuti, & Galvin, 2013). In 2011, the "Baby Boomer" generation (adults born between 1946 and 1964) started reaching the age of 65, launching an unparalleled phenomenon in the U.S. For the next 20 years, roughly 10,000 Americans will celebrate their 65th birthday daily (Centers for Disease Control and Prevention (CDC), 2013).

Currently, persons aged 65 years or older constitute 14.1% of the U.S. population, increasing to 19.3 % by 2030 and to 21.7% by 2040 (Administration for Community Living (ACL), 2013). Accordingly, one in five people will be aged 65 or over in 2030 (CDC, 2013), constituting more than 70 million older adults in the U.S. (Institute of Medicine, (IOM), 2015). By 2060, there will be approximately 98 million older persons, more than twice the number in 2013 (ACL, 2013). Older adults, moreover, are living longer in the United States; the average lifespan for women is 85.4 years, while that for men is 82.8 years (The U.S. Administration on Aging, 2013).

Older adults have a more complex presentation of diseases and illnesses than any other population due to higher incidence of numerous comorbidities, polypharmacy, and functional impairments (Pines, Mullins, Cooper, Feng, & Roth, 2013). It is not surprising that adults age 65 and older accounted for 19.6 million emergency department (ED) visits

in the United States in 2010 (Albert, McCaig, & Ashman, 2013). Older adults present to the ED primarily due to a high prevalence of chronic diseases and consequential susceptibility to frequent exacerbation of these illnesses (Samaras, Chevalley, Samaras, and Gold, 2010). Approximately 17 % of adults living in the community age 65 and older have at least one treat-and-release ED visit each year. Data have shown that one in three older adults recently discharged from the ED, that return to the ED, are admitted to the hospital, sent to a nursing home, or die within 90 days after being treated and released from their ED visit (CDC, 2013).

Nurses are the primary health care professionals who provide direct care to older adult patients (Boltz, et al., 2013). Nurses' knowledge and attitudes appear to affect their willingness in working with older people as well as the quality of care provided to them. Literature reveals that most nurses who graduated before 2005 did not receive a stand-alone geriatric course in their pre-licensure nursing program (Roethler, Adelman, Parsons 2011, & Samaras, et al., 2010). Current literature also indicates that nurses are still graduating without having a specific geriatric course, specifically from schools that are still integrating the older adult with other populations being taught (Samaras, et al., 2010).

Research findings reveal that a number of ED nurses acknowledge a personal bias against the older adult, which reflects past experiences with this group or a negative attitude regarding aging (Lu, Norman, & While, 2013). Emergency department nurses are trained to stabilize and transfer, or refer the acute patient. Due to multiple and often confounding variables, the older adult patient may be perceived as difficult, complex,

confused, and time-consuming (Adibelli & Kilic, 2013). Considering that older adults have higher mortality rates and readmission rates it is imperative that ED nurses have the knowledge and open attitude to provide the appropriate care needed in the emergency department. Emergency nurses are primarily responsible to make initial decisions about the acuity level, and specialty needed to which the patient should be referred, and the priority of the patient situation to be seen (Hastings, Whitson, Sloane, Landerman, Horney, Johnson, 2014). In addition, ED nurses are held to making sure the patient receives care while they are waiting in the emergency department. With these reponsibilities placed on the ED nurse it is very important to assess their current knowledge of and attitudes toward the older adult patient to assure high quality and safe care be provided.

## Problem Statement

The views of nurses toward the older adult patient are vital to the services they provide to this vulnerable population. A number of authors have suggested that nurses tend to hold negative attitudes about older adults (Deasey, Kable, & Jeong, 2014; Lui, Norman, & While, 2013). The negative attitudes that nurses have may be due to the fact that as a person ages they become vulnerable after entering the hospital or adult care facilities (Lui, Norm, & While, 2013). Nurses perceive the older adult patient vulnerability as an increase in their workload due to increased safety concerns and potential complex care needs. Nurses' knowledge and attitudes appear to affect their willingness to work with older people as well as the quality of care they provide for them (Adibelli & Kilic, 2013).

## Purpose of Study

The purpose of this study was to explore the effect of an educational intervention on attitudes and knowledge of ED nurses toward the older adult patient and their intentions to change their care behaviors toward this population in the emergency department. This study focused on: a) the effect of an educational intervention on attitudes and knowledge of ED nurses toward older adults, b) if improving ED nurses' knowledge of older adults influences their attitudes toward older adults, c) if an educational intervention will aid in identifying ED nurses' behavioral intentions to change how they care for older adults.

## Background and Significance

This fast growing population of older adults will have an influence on the future volume of visits in EDs nationwide. Although the general population has increasingly utilized emergency departments in the U.S. over the last decade, the numbers of EDs have declined, placing an increased burden on the remaining facilities (Weiss, Wier, Stocks & Blanchard, 2014). The majority of EDs are not prepared to care for elderly patients. Consequently, these patients frequently experience longer wait times, and environments that are noisy and less than older adult-friendly (Nolan, 2009). This population presents to the ED with multiple complex issues, such as cognitive and functional impairments, comorbidities, and social issues. Diagnosis in the ED setting for older adults may be more difficult due to atypical patient symptoms and indecisiveness towards planning and implementing healthcare measures on the part of healthcare providers.

Nurses' lack of knowledge and positive attitudes may influence the older adult patients' length of stay, health outcomes, safety, and other care-related concerns (Steinmiller, Routasalo, & Suominers, 2015). The literature indicates that healthcare professionals in the ED lack geriatric-specific educational training (Samaras, et al., 2010). There is a need to provide educational interventions to healthcare providers to close this knowledge gap. Emergency department nurses report the need to have educational opportunities on how to most effectively care for elderly patients, through prioritizing their care, and recognizing when a physician is needed for their care (Boltz, Parke, Shuluk, Capezuti, & Galvin, 2013). The greatest opportunity for nursing in the coming years will be in caring for this new aging population (Steinmiller, Routasalo, & Suominers, 2015). Negative attitudes reflected in ageist stereotypes and knowledge deficits influence nurses' practice and have impact on older adult patients' quality of care (Liu, Norman, & While, 2013). Little, if any research evaluating the effects of an educational intervention utilizing emergency nurses to enhance their attitudes and knowledge toward older adult patients is available in the literature, pointing to a potential knowledge gap concerning ED nurses' knowledge and attitudes toward caring for the older adult patient.

## Theoretical Framework for Study

The Theory of Planned Behavior (TPB) was the framework that guided this study. Icek Ajzen's Theory of Planned Behavior (TPB) evolved from the Theory of Reasoned Action in 1980, with the addition of the component of perceived behavior control. Perceived behavior control is a concept originating from self-efficacy theory (Ajzen, 2002). The theory was derived from knowledge acquired in the field of social psychology. The

TPB incorporates components that relate to attitudes and the ability to predict behaviors in the presence of certain attitudes (Cote, Gagnon, Houme, Adbeljelil, & Gagnon, 2012). This theory has been useful in explaining healthcare professionals' behaviors and intentions (Nelson, Cook, & Ingram, 2013). The key component of this model is behavioral intent. Attitudes concerning the likelihood that a behavior will have the expected outcome, in addition to one's own evaluation of the risks and benefits of that outcome, heavily influence behavioral intentions. The behavioral change depends on both motivation (intention) and ability (behavioral control) (Ajzen, 1991).

The TPB explains that intention is the immediate precursor to behavior, and depends on three direct constructs: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). The theory also has three indirect constructs, which are behavioral beliefs, normative beliefs, and perceived behavioral control beliefs. These indirect constructs respectively influence attitudes, subjective norms, and perceived behavioral control that influences one's intention to perform a behavior. Within the TPB, these three beliefs are distinguished from one another. Behavioral beliefs represent the subjective probability that a behavior will produce a given outcome, while normative beliefs are perceived behavioral expectations from important individuals or groups, and perceived behavioral control beliefs are the perceived presence of factors that may either impede or facilitate a behavior (Ajzen, 1991). Attitude is one of the direct constructs and is the degree to which the performance of the behavior is positively or negatively valued. The second direct construct is subjective norm, which denotes the social pressure to engage or not to

engage in a behavior and the third direct construct is the perceived behavior control, which refers to the person's perceptions of their ability to perform a given behavior (Ajzen, 1991).

Research efforts focusing on attitude, subjective norm, and perceived behavioral control may best guide an educational intervention in the form of a geriatric workshop developed specifically for ED nurses. The offering of an educational session may aid in identifying ED nurses' behavioral intentions, and help recognize their current attitudes and current knowledge towards of older adults. In order to understand the knowledge and attitudes of ED nurses toward the older adult patient, the two direct constructs that guided this study were attitudes and perceived control behavior.

## Research Questions and Hypotheses

The aim of this study was to examine the current knowledge and attitudes of emergency department nurses' toward the older adult patient. This study will attempt to answer the following research questions and hypotheses:

**Research Question 1**

What are the attitudes of ED nurses toward older adults?

**Research Question 2**

What is the knowledge of ED nurses about older adults?

**Research Question 3**

What is the relationship between ED nurses' knowledge of the facts of aging and their attitudes toward older people before and after an educational intervention?

**Research Question 4**

Will an educational intervention aid in identifying ED nurses' behavioral intentions to change how they care for older adults?

**Hypothesis 1**

Emergency department nurses who receive an educational intervention on geriatric nursing care will have higher overall aging knowledge scores at immediate post education intervention and four weeks post education intervention than those ED nurses who did not receive the educational intervention.

**Hypothesis 2**

Emergency department nurses who receive an educational intervention on geriatric nursing care will have higher positive attitude scores at immediate post education intervention and four weeks post education intervention than those ED nurses who did not receive the educational intervention.

## Definitions of Terms

Attitude- is an affective or evaluative predisposition toward the elderly that is related to a belief or truth (Fishbein & Ajzen, 1975). The mean scores as determined by the Kogan's Old People Scale will define a positive or negative predisposition.

Knowledge- is facts, information, and skills acquired by a person through experience or education (Lambrinour, Sourtzi, Kalokerinou, & Lemoniduou, 2009). The mean score as determined by the Palmore's Facts of Aging Quiz will define knowledge levels.

Educational Intervention- is "the transition of noncontroversial information or the handing of controversial topics by recognizing them as controversial, using an objective approach,

and bringing all relevant facts to bear" (Palmore, 1991, p. 144). A workshop on geriatric nursing care will serve as the educational intervention.

Emergency Department Nurse- is a licensed registered nurse who is employed and assigned to work in the emergency department.

Older/Elderly Person- a person over 65 years of age.

## Summary

It is essential that ED nurses have positive attitudes toward the growing population of older adults and the knowledge to provide care for them in order to foster quality patient outcomes (Pines, et al., 2013). A lack of gerontology skills or lack of understanding of the aging process can have a negative effect on ED nurses' attitudes to older adults and the quality of care they provide (Liu, Ian, & White, 2013). Emergency department nurses have the potential to play a critical role in creating positive experiences and quality health outcomes for older adults in the emergency department setting. Examination of emergency department nurses' knowledge and attitudes toward the older patient population can help identify gaps in knowledge and may lead to ideas on how to change attitudes in emergency nurses.

In fact, there is consistent and reliable evidence suggesting that a person's knowledge about aging reveals his or her attitude toward older individuals; when a person has a lot of correct knowledge about aging, he or she tends to hold more positive beliefs towards older individuals (Palmore, 1998). According to Palmore (1988), education was the main variable that made a consistent, significant difference in overall knowledge about aging. Causes for this included the fact that as an individual's educational levels increased,

so did their general knowledge, including information about aging. Ferraio et al., (2008) suggested that the job of education was to help shape attitudes and values, because behavior was ultimately guided by those attitudes and values. Palmore (1991) stated that education is the most effective way of decreasing prejudice and/or discrimination. He also suggested that that even general education has shown to be a helpful way to increase knowledge about aging and reduce misconceptions about older adults (Palmore, 1991). In addition, even short-term education has been shown to diminish bias against older adults. For this study the TPB constructs of attitude, perceived behavioral control and intentions will serve as guidance to answering the research questions. This study will contribute to the body of knowledge of geriatric nursing care by determining if an educational intervention will increase ED nurses' knowledge and attitudes towards care.

CHAPTER II

LITERATURE REVIEW

## Introduction

This chapter provides a comprehensive review of the literature related to emergency department (ED) nurses' attitudes and knowledge toward older adult. This chapter begins with an overview of older adults in the emergency department (ED) setting, the focus of the proposed study. Additional literature reviewed includes: nurses' attitudes toward older adults, influences on attitudes, nurses' knowledge toward older adults, influences on knowledge, and the influences of educational interventions on healthcare professionals. An overview of the Theory of Planned Behavior (TPB) is also included in the chapter.

## Older Adults in the Emergency Department

The United States (U.S.) has a growing population of older adults. The population aged 65 years or older numbered 44.7 million in 2013 (the most recent year for which data are available) which represents 14.1% of the U.S. population: about one in every seven Americans (United States Census Bureau, 2014). The number of older Americans increased by 8.8 million, or 24.7% since 2003 compared to an increase of 6.8% for the under 65 population (Centers for Disease Control and Prevention (CDC), 2013). Life expectancy during the 20th century ranks as one of society's greatest achievements. The life expectancy at birth has increased from less than 47 years in 1950 to more than 84 years today (National Institute of Aging, (NIH), 2015).

With the increase in life expectancy, it is projected that by 2020, 25% of all ED visits will be by patients 65 years and older. Approximately 17% of older adults living in the community have at least one treat-and–release ED visit each year. Almost one-half of adults, or approximately 46%, who return to the ED are admitted to the hospital, compared to 11% of the younger population. Thirty- three percent of older adults who seek ED services arrive by ambulance. Older adults that visit the ED have more co-morbidity, comprehensive needs, and higher rate of diagnostic tests performed compared to their younger cohorts (CDC, 2013). The length of stay in the ED for older adults is 19%-58% longer than in other patient populations (CDC, 2013).

With the increasing number of older adults seeking care in the emergency departments, ED nurses need to enhance their knowledge of managing older adults in a busy, noisy and fast-paced environment. Emergency department nurses are expected to know how to recognize and care for older adults suffering from life threatening conditions, including stroke, myocardial infarction, heart failure, and many other acute conditions. With current emphases in EDs on patient throughput (Manning, 2012; Tanabe, et al., 2008), it is crucial for nurses to have adequate knowledge about caring for older adults to help expedite their disposition. In addition, with increasing focus on healthcare quality outcomes, especially nursing-sensitive indicators and valued-based purchasing initiatives, there is a burden on ED nurses to decrease adverse events, length of stay, and ED return visits (Kavanagh, Cimiotti, Abusalem, & Coty, 2012).

It is essential that ED nurses have positive attitudes toward this growing population and the knowledge to provide care for older adult patients when they present with multiple

comorbidities, atypical presentations of common diseases, and medical complications that result from traumatic injuries in order to foster quality patient outcomes (Pines, Mullins, Cooper, Feng, & Roth, 2013). A lack of gerontology skills or lack of understanding of the aging process can have a negative effect on ED nurses' attitudes about older adults and the quality of care they provide (Liu, Ian, & White, 2013). Emergency department nurses play a critical role in affecting older adults' positive experiences in the ED setting.

## Nurses' Attitudes Toward Older Adults

Attitudes are predispositions or tendencies to respond positively or negatively toward a certain idea, object, person, or situation. Attitudes influence an individual's choice of action and responses to challenges, incentives, and rewards (together called stimuli) (Goncalves, 2010). The conceptual definition of attitude is the expression of how a person's beliefs, feelings, and experiences about an object or concept are reflected by cognition, affection, and influence of one's behavior (Cozort, 2008). Attitudes are usually shaped through social learning, and processes such as peer observations regarding caring for older adults and opinions held by others, both of which help to describe how some attitudes are formed even without direct interaction (Baron & Byrne, 1994).

Studies conducted since the 1950's have identified negative attitudes of registered nurses (RNs) toward caring for older adult patients. These negative attitudes have continued through the 20th century and now into the 21st century and are associated with nurses who care for older adults feeling they receive less professional recognition for caring for older adults (Desy &Prohaska, 2008; Oyetunde, Ojo, & Ljewale, 2013; Zampieron, Saraiva, Corso, & Buja, 2012). A study conducted by Tavares, Silva, Sa-

Couto, Boltz, and Capezuti (2015) on nurses' knowledge and attitudes toward hospitalized older adults reported that critical care unit (CCU) nurses had more negative attitudes toward older adults experiencing geriatric syndromes compared to nurses in other hospital units. Two other studies also reported that nurses hold negative attitudes toward older adult patients. A study by Oyetunde, Ojo and Ojewale (2013) showed that nurses from Nigeria who worked on medical and surgical units had good knowledge of geriatric care, yet still had negative attitudes toward the care of the elderly. The study reported that some of the causes may be due to poor staffing, difficulty in just caring for the elderly, and the impact of old patients' behavioral changes. In a qualitative study of 10 nurses, Kihgren et al. (2005) looked at ED nurses' experiences in providing what they felt constituted good nursing care for older adult patients. The authors reported that ED nurses link their feelings of responsibility, both implicit and explicit, to good caring. Negative attitudes toward older adults are linked with the ED nurses' perception that this population is often sent to the ED inappropriately.

While studies have found negative attitudes in nurses, several studies reviewed showed that nurses have positive attitudes toward older adults (Adibeli, & Kilic, 2012; Furlan, Craven, Ritchie, Coukos, & Fehlings 2009; Gills, MacDonald, Maclsaac, 2008). The study by Gills, MacDonald, and MacIsaac (2008) used a descriptive cross-sectional survey on 157 nurses, and explored knowledge, beliefs, attitudes, and confidence in providing care to prevent and treat deconditioning in hospitalized older adults. The results showed that participant's scores demonstrated a gap in their knowledge and understanding of the deconditioning process in the older patient. The study findings suggested that

effective continuing education programs are critically needed to bring knowledge of best practices in gerontological nursing to practice nurses. Furlan et al. (2009) found that rehabilitation nurses had more positive attitudes toward older adults than acute care nurses did. Desy and Prohaska (2008) found that nurses working in an acute care hospitals had more positive attitudes than nurses who did not work in an acute care hospital. Mellor, Chew, and Greenhill (2007) reported from their study that nurses from multi-purpose health service hospitals had an increased knowledge of physiological changes in regards to older adults and had more positive attitudes than nurses who lack knowledge of older adult physiological changes. The study suggested that education was a predictor of nurses having positive attitudes toward older adults. An international study using the Kogan's Attitudes Toward Older Adults (KOAP) survey found renal nurses to have slightly positive attitudes toward older adults (Zampieron, Saraiva, Coroso, & Buja, 2012). Zampieron et al. (2012) also reported that male renal nurses demonstrated more positive attitudes than did female nurses. In one study, Boltz, et al. (2008) found that nursing unit/department, practice environment, bed capacity, and knowledge played a vital role in nurses' attitudes toward older adults.

## Influences on Attitudes

Several studies identified what may influence nurses' attitudes toward older adult patients. Work environments make a difference with attitudes and care provided to older adult patients (Adibeli, & Kilic, 2012; Boltz, et, al., 2008; Tavare, & Silva, 2013). Boltz et al. (2008) did a secondary analysis of data collected from RN responses to the Geriatric Institutional Assessment Profile (GIAP). Study results showed that a positive geriatric

practice environment was associated with positive geriatric care delivery. An international study on renal nurses reported that attitudes were influenced by continent and country, being of the Protestant faith, having the presence of older people in the family, and having a bachelor in science in nursing degree (Zampieron, et al., 2012). Individual preference for working with older adults also may affect attitudes (Boltz, el at., 2008; Zampieron, el at., 2012). Nurses who prefer to work with older adults and who develop relationships tend to report higher quality patient outcomes.

Positive attitudes can be promoted through education about older adults, along with having educators who hold positive views about older adults (Dube, & Ducharme, 2014; Tavare, et al., 2015). Two of the studies demonstrated that nurses with higher levels of professional education had positive attitudes toward older adults (Furlan, et al., 2009 & Zampieron, et al., 2012). Many studies reported that increased gerontological education improved attitudes toward older adults (Dube, & Ducharme, 2014; Furlan, et al., 2009; Tavare, et al., 2015; Zampieron, et al., 2012). Differences noted between studies included that the age of nurses had no difference on attitudes toward older adults (Dube & Ducharme, 2014; Oyetunde, Ojo & Ojewale, 2013), whereas Furlan et al. (2009) reported that the older nurse had more positive attitudes toward older adults. A few studies reported that years of experience did not make a difference in nurses' attitudes (Furlan, et al., 2009; Oyetunde, Ojo, & Ojewale, 2013; Zampieron, et al., 2012). Oyetunde, Ojo, and Ojewale (2013) reported that even certifications or qualifications with medical or surgical nurses did not make a difference in attitudes toward older adults. In several studies, there were debates on whether where the nurse worked made a difference in their attitudes (Furlan, et

al., 2009; Oyetunde, Ojo, & Ojewale, 2013). Furlan et al. (2009) did find that the type of unit did make a difference in nurse attitudes toward older adults. Finally, other factors influencing nurses' attitudes include workload, time constraints and feeling of lack of support (Kilgren, Nilsson, & Sorlie 2005; Tavare, et al., 2015).

**Nurses' Knowledge Toward Older Adults**

The second concept reviewed is knowledge of nurses. Knowledge is gained by the gathering of facts, information, and skills acquired through experiences or education (Lambrinour, et al., 2009). Knowledge is inherently related to attitudes (Alford, et al., 2001). Research has shown that the attainment of new knowledge regarding a certain object population has been considered one of the most effective methods in changing attitudes (Alford et al., 2001).

Two studies found that nurses reported insufficient knowledge about older adults, making it difficult to provide care to them (Adibeli & Kilic, 2012; Kihlgren, Nilsson, & Sorlie, 2005). Gills, MacDonald, and MacIsaac (2008) reported there have been significant efforts to improve gerontological curricula in undergraduate nursing programs in the past decade. This study also pointed out that the majority of nurses are between 43 to 46 years old, and graduated from programs before formal gerontological education was a part of the core curriculum. Gills, MacDonald and MacIsaac's (2008) findings support that effective continuing education programs are crucial to bring knowledge of best practices in gerontological nursing to practicing nurses. The educational courses recommended are diagnosis and assessment of risk for deconditioning, prevention interventions, and strategies for patient and family teaching. In their qualitative study of ten emergency

nurses, Kihlgren, Nisson, and Sorlie (2005) found a correlation among knowledge of the older population, the perception of ability to care for older adults, and the nurses' perception of self-worth. Roethler, Adelman, and Parson (2011) and Desy and Prohaska (2008) noted that many ED nurses unfortunately have not received geriatric education either by formal or continuing education programs and are not fully prepared to care for this population. Tavare et al. (2013) determined that critical care nurses also lacked the knowledge to work with older adults. Furthermore, Tavare et al. (2013) cited that nurses in academic hospitals had more knowledge about older adults than nurses in non- academic hospitals.

Zampieron et al. (2012) observed no correlation between nurses' knowledge of older adults and their nursing experience, gender, or age. Staffing levels and practice environments were identified as having no influence on knowledge (Boltz, et al., 2008). Geriatric practice environment can have a positive influence on the quality of patient outcomes but not on geriatric nursing knowledge (Boltz, et al., 2008; Desy, & Prohaska, 2008). Nurse staffing level, years of experience, gender, or age were not associated with geriatric knowledge (Boltz et al., 2008; Zampieron, et al., 2012). Boltz et al. (2013) reported that nurses had lack of knowledge regarding common medical conditions of older adults.

Continuing education has an impact on nurses' knowledge. The study completed by Dube and Ducharme (2014) used an intervention. The authors used a quasi-experimental approach. The experimental group, which included 43 nurses, was offered eight workshops that provided education on how to use Reflective Practice (RP), which is a strategy for self-

assessment of one's professional practice that includes experiences, thoughts, emotions, actions, and knowledge. The control group did not receive any education. The study revealed that the nurses in the experimental group that were offered reflective practice workshop training showed improvement in their knowledge toward older adults compared to the control group. Desy and Prohaska (2008) reported that offering the Geriatric Emergency Nursing Education (GENE) educational courses to ED nurses improved their knowledge of geriatric concepts. Confidence levels in caring for older adults can be improved by enhancing nurses' knowledge regarding older adults (Gills, et al., 2008). Closing the gap in the science of ED nurses' knowledge and attitudes toward the older adult patients cared for in the ED would result in greater understanding of the impact knowledge and attitude may have on the care provided to this population of patients.

**Educational Interventions and Healthcare Professionals**

An intensive electronic literature search on the topic of educational interventions in health care professionals produced 28 articles using CINAHL, MEDLINE, Ageline, ERIC, Education Retrospective, Health Source, and PsychINFO. The search years were 2010 to 2015. Four articles out of 28 were identified as research studies that used educational interventions on healthcare professionals. The educational interventions used in these studies included providing a workshop, self-learning module, classroom didactic training, computer based training, face to face feedback, chart audits, role play, live demonstrations, interactive modules, peer coaching, and seminars. Three of the four studies used multiple educational strategies within their study. The studies targeted a diverse group of healthcare

providers such as physicians, medical students, mental health professionals, and psychology graduate students.

In the study by Blair, Haas and Millheiser (2013), there was a focus on improving women's sexual health and the researchers used a four hour educational workshop and live interactive role modeling with 59 mental health professionals, physicians, and psychology graduate students to increase knowledge about female sexual dysfunction. Results showed that the participants perceived a significant increase in knowledge about prevalence of female sexual complaints, treatment and referral opportunities.

Falker and Sledge (2011) used a self-learning model to educate healthcare professionals about the bariatric patient. The self-learning module was placed on the unit to be completed at the convenience of the participants. Participants completed a pre-survey prior to the module. Participants had a one month time frame to complete the educational module. Immediately upon completion of the module, participants took a post-survey. The study reported that the educational module was effective in decreasing stigmatization in healthcare providers one month after completion of the educational intervention module.

A review of the literature completed by Govela et al. (2013) examined educational interventions used to improve the meaningful use of electronic health records by healthcare professionals. The researchers reported that classroom training, computer-based training, and immediate feedback were the most effective to improve knowledge on meaningful use of health records. In addition, the review revealed that training should be tailored to the needs of the trainee and the trainee should be able to practice at their convenience. This

review of literature also reported that educators should take into consideration computer literacy among participants and that the educational intervention should be flexible.

Another review of the literature completed by Schichtel, Rose, and Sellers (2013) investigated studies using educational interventions for primary healthcare professionals to promote the early diagnosis of cancer. Seven out of forty-three studies included in this systematic review were all randomized control trial (RCT) studies. Interventions used in these studies included interactive educational sessions, reminder systems such as computer pop-ups, audits, and feedback on demonstration on assessing participants. The educational interventions used in these studies demonstrated positive effects on early diagnosis of cancer and appropriate use of screening methods. This review indicated that didactic teaching alone as a single method may not be an effective educational intervention to change practice. Most of the studies in this review used multifaceted educational interventions.

These studies all revealed that providing education to healthcare professionals is often difficult because of staff shortages, 24-hour work schedules, conference room availability, and access to instructors. The studies by Blair, Arnow, Hass, and Millheiser (2013) and Falker and Sledge (2011) reported that a new trend is to use more web-based educational modules because of the flexible access of content to be taught. In another study by Govela et al. (2013), a review of the literature reported that the participants in the studies preferred classroom, face-to-face interactions due to being able to get immediate feedback. A clear key to success is the involvement of the participants in the decision of what type of educational intervention to provide.

**Influences of Educational Interventions on Emergency Nurses**

There were very few studies found that that utilized educational interventions toward nurses that worked in an emergency department. A study reported by Ballard, Bairan, Newberry, Brackie, and Barnett (2011) provided didactic classes at the annual emergency department skills update on a new chest pain mnemonic (CPM). A pretest was given before the class and a post-test was given after the class to determine knowledge related to anterior myocardial infarction (AMI) recognition. The educational intervention showed improved ED nurses' knowledge on recognizing patients presenting with signs of a myocardial infarction. Another study completed by Blank et al. (2011) used several different educational interventions to reduce medications errors. Educational interventions included a 20-page educational flip chart and a slide show presentation that was placed in the emergency department breakroom for three months. The ED nurses were asked to complete a pre-survey and pre-test prior to reading the material and after immediately completing a post-test. The post-test demonstrated that the educational intervention successfully improved knowledge of recommended medication administration practices but did not show a significant difference in improving medication errors. One study by Wietske, Schoonhoven, Schuurmans, Veugelers, and Leenen (2015) focused on improving ED nurses' identification and classification skills of pressure ulcers. Another study by Brymer, Cavanagh, Denomy, Wells, and Cook (2001) evaluated if a geriatric educational program would improve assessment and discharge planning for older adults seen in the emergency department. Both studies showed that offering educational workshops improved ED nurses' knowledge. Ham et al. (2015) improved nurses' knowledge on

classifying pressure ulcers and Bymer et al. (2001) improved ED nurses knowledge on assessment skills for screening for depression and altered mental status in older adults, along with needed referrals. The final study reviewed used a Web-based on-line educational intervention to improve ED nurses' knowledge on 5-level triage system to classify patients' acuities (Ballard, 2011). The results showed that there was a significant increase in knowledge of ED nurses in transferring triage learning to practice.

The review of studies showed that different educational interventions have been used in the ED setting to enhance the knowledge of ED nurses to improve health outcomes. However, the researchers in the studies reported there are key variables that need to be addressed prior to implementing education interventions such as the ED environment, staffing, generational differences, computer skills, and other factors associated with the ED setting that may influence what would work best to enhance knowledge and improve patient outcomes.

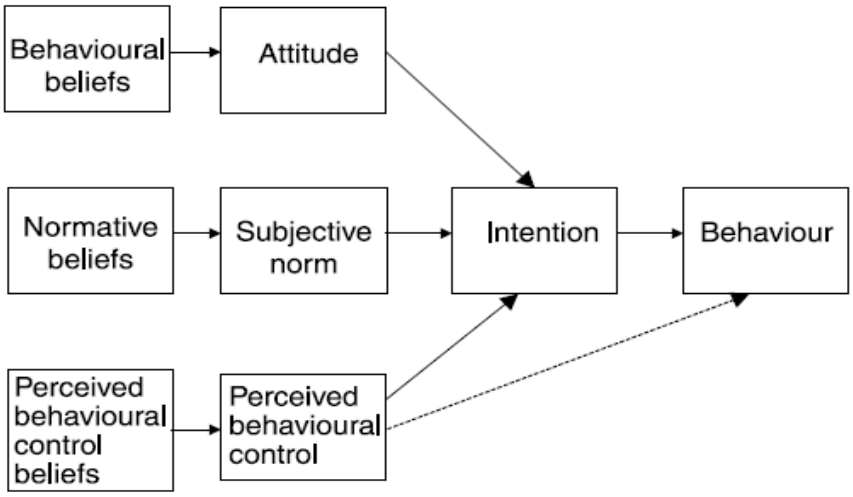
## Theory of Planned Behavior

The Theory of Planned Behavior (TPB) provided the guiding framework for examination of ED nurses' attitudes and knowledge toward older adult patients and their intentions to change their behavior toward caring for older adult patients. The TPB explains that intention is the immediate precursor to behavior, and depends on three direct constructs: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). Figure 1 displays these direct constructs in addition to the theory's indirect constructs, which are behavioral beliefs, normative beliefs, and perceived behavioral control. Within the TPB, these three beliefs are distinguished from one another. Behavioral beliefs

represent the subjective probability that a behavior will produce a given outcome, while normative beliefs are perceived behavioral expectations from important individuals or groups (Ajzen, 1991).

*Figure 1*

*Theory of Planned Behavior (Adapted from Ajzen 1988)*




Icek Ajzen's TPB evolved from the Theory of Reason Action (TRA) in 1980, with the addition of the component, perceived behavior control. The TRA's main principle is that people use reasonable consideration of available information to make behavioral decisions. The Theory of Planned Behavior expanded applicability to non-volitional behaviors with the inclusion of perceived behavioral control (Ajzen & Frishbein, 1980). Since internal control (information, personal deficiencies, skills, and abilities) and external control (opportunities, dependence on others, barriers) factors clearly interfere with the intention-behavior relationship, the TRA addressed incomplete volitional control (Ajzen,

1985). Ajzen (1988) conveyed that the intention-behavior relationship would be modified if the behavior were volitional or under the person's control.

The Theory of Planned Behavior views intention as the determinant of behavior. "Intentions" are assumed to capture the motivational factors that influence behavior; they are indicators of how committed people are to be willing to try, or how much energy they are planning to exert in order to perform the behavior. The person's behavior intention can still be weak even if they have positive attitudes toward the behavior. The construct perceived behavioral control directly affects behavior positively when the person feels in control and conversely has a negative effect when the person lacks control.

For the purpose of this study, the constructs attitude, perceived behavioral control, and intentions were used to further understand the knowledge and attitudes of ED nurses. Attitude represents the degree to which the performance of the behavior is positively or negatively valued (Goncalves & Morrow-Howell, 2010). Identifying emergency department (ED) nurses' attitudes towards elderly patients helped identify if providing an educational intervention changed their current attitudes towards the older adult patient. Determining the current attitudes of emergency nurses was helpful in understanding what future educational offerings may be needed and what may be influencing their attitudes toward this population.

Perceived behavioral control refers to the person's perceptions of their ability to perform a given behavior (Ajzen, 1991). The present view of perceived behavioral control is most compatible with Bandura's (1997) concept of perceived self-efficacy which "is concerned with judgement of how well one can execute courses of action required to deal

with unexpected prospective situation" (Ajzen, 1991, p. 184). The literature has shown that people's behavior is strongly influenced by their confidence in their ability to perform the behavior. The person gaining knowledge about a perceived task, or patient population can influence the self-efficacy part of perceived behavioral control. Gaining knowledge and confidence can influence choices of activities, preparation for an activity, effort expended during performance as well as thought patterns and emotional reactions (Azjen, 1991). Examining this construct assisted in recognizing whether ED nurses believe that they have adequate knowledge about older adults to be able to provide the necessary care to elderly patients in the ED environment. Research efforts focusing on attitude and perceived behavioral control provided the best guide for an educational intervention in the form of a geriatric workshop developed specifically for ED nurses. An educational session aided in influencing ED nurses' behavioral intentions and helped them recognize their attitudes and knowledge towards caring for the elderly patient.

## Summary

The information gleaned from the literature review demonstrates that nurses' knowledge may influence their attitudes. Research suggests that many nurses have negative attitudes toward older adults, which may influence patient outcomes. Nurses have a lack of knowledge about older adults in regards to geriatric syndrome, functionality, co-morbidities, and their medications. Emergency nurses who graduated before 2005 lack adequate geriatric specific education.

Emergency departments are the portal of entry for many older adult patients to receive care. It is inherent that ED nurses have positive attitudes and knowledge to be able

to provide the highest quality of care for this growing population. The literature also suggests that the quality of care that the older adult patients receive could be hindered by the attitudes of nurses caring for them. No studies were found which examined the effects of an educational intervention on improving ED nurses' knowledge of older adults and the impact of ED nurses' attitudes on their care. Therefore, with the projection that 61 out of 100 patients seen in the ED will be older adult patients, it was important to examine the influence of an educational intervention on ED nurses' attitudes and knowledge.

The use of the TPB helped to identify ED nurses' current knowledge and attitudes toward the older adult patient. The construct of perceived behavioral control was assessed by measuring the ED nurses' current knowledge of the older adult. Identifying their current knowledge level helped with understanding how ED nurses felt they were capable of providing care for this population. Further research was warranted to identify current knowledge and attitudes of ED nurses regarding older patients and to assess the effect of an educational intervention on their knowledge and attitudes.

# CHAPTER III

# METHODS

The purpose of this study was to examine the current knowledge and attitudes of Emergency Department (ED) nurses toward older adults. The study also explored the effect of an educational intervention on ED nurses' attitudes, knowledge and their behavioral intentions to change how they care for older adults. This chapter describes the methodology of the research including the research design, setting, description of the sample, and the procedures used for data analysis.

## Design

This research study used a two-group quasi-experimental, longitudinal pretest-immediate posttest and four- week posttest design. A quasi-experimental pretest- posttest approach is the best method to use to answer selected research questions regarding if an educational intervention can influence ED nurses' attitudes, knowledge and their intention to change their behavior in providing care to the older adults in the ED setting.

The quasi-experimental pretest-posttest design is also referred to as the before-and-after design (Polit & Beck, 2012). It is the preferred method to compare participant groups and measure the degree of change occurring as a result of treatments or interventions (Polit &Beck, 2012). Pretest–posttest designs are employed in both experimental and quasi-experimental research and can be used with or without control groups. For example, quasi-experimental pretest–posttest designs may or may not include control groups, whereas

experimental pretest–posttest designs must include control groups (Hulley, Cummings, Browner, Grady, & Newman, 2013; Polit & Beck, 2012). The quasi-experimental design is used when randomization cannot be employed and it is typically easier to set up than a true experimental design. The design also allows for some generalization to be made with the identified findings.

All nurses employed in the EDs from a five-system hospital were eligible to participate in the study. Every ED nurse employed in the health system received an electronic notification of the research study and details on how to participate. If the ED nurses were interested in participating in the research study, they signed-up in Health Learning Center (HLC) in order to attend the four-hour educational intervention (Geriatric workshop); this group was considered the experimental group. The ED nurses who were unable to attend the workshop but still wanted to participate were placed in the control group.

The experimental group attended a four-hour geriatric workshop that offered 90 minute lectures that included thirty minute mini geriatric lectures, two hours of interactive educational stations and thirty minutes to complete the pre and immediate post survey. The data from the emergency nurses were collected over three different time periods. The pretest, posttest and posttest consisted of a four-part survey that included a demographic section, Palmore's Facts of Aging Quiz I (PFAQ), Kogan's Attitudes toward Older Adults (KOP), and a behavioral intention question section. Both the experimental and control group received an email with a link to complete the pre-survey questions the day before the Geriatric workshop. The experimental group participants were also given the opportunity

to complete the pre-survey the morning of the workshop prior to start of the workshop in a computer room that had been reserved. The experimental group also completed an immediate posttest survey the day of the workshop in the computer room. The control group received the immediate post-survey the morning of the workshop around eleven o'clock via an email to stay consistent with the experimental group completing the post intervention survey. The post-posttest was administered four weeks after the educational intervention to both the experimental and control group via email.

**Setting**

The setting for this study was a large healthcare system in the Southeastern United States that consists of five emergency departments and cares for approximate 750 patients daily between the five emergency departments. The educational intervention was held in five classrooms in the staff educational department owned by the health system.

**Sampling**

Convenience sampling was used to capture an adequate sample size. Convenience sampling is a non-probability approach (Polit & Beck, 2012). This type of sampling has been shown to be beneficial in generating studies to guide future research efforts. All emergency department nurses in this one health system received an email requesting their voluntary participation in this study. Flyers were posted in each emergency department to notify the ED nurses of the geriatric workshop and their opportunity to participate in a research study. The researcher performed face-to-face recruitment in each ED.

The criteria for inclusion in the study were licensed registered ED nurses who:

1. Were employed by the health system.
2. Were age 18 or older
3. Understood and spoke the English language

The criteria for exclusion from the study were emergency nurses who:

1. Have not achieved registered nurse status
2. Did not work in the EDs in the health system
3. Did not speak English

**Methods**

The researcher met with the nursing research councils of the healthcare system to obtain permission to conduct the research at the facility. As stated above, ED nurses were recruited through the healthcare system's electronic mail system. An email was sent to all ED nurses, which included an electronic letter explaining the purpose and importance of the study along with how to sign up if they were able to attend the four-hour geriatric workshop. If they were unable to attend, information was given to them on how they could participate by completing the surveys via a link that would be sent out to them electronically. Those participants that attended the workshop had access to a computer to complete the pretest and immediate post-test. Access to the link for the pre and posttest were made available through any computer that had internet access. The control group completed the pretest survey the same day as the Geriatric workshop and they had a week to complete the post-survey. All nurses who completed the surveys within the allotted time frame were included in the data collection. Per the IRB, completing the pretest, immediate posttest, and post posttest surveys implied informed consent from the participant in the

study; therefore, there was not a separate informed consent document. Only an electronic survey was used to collect data from the control group. Qualtrics™ was the electronic instrument used to collect the survey data. Only the investigator, hospital quality personnel, and statistician examined the completed surveys. Survey results were kept electronically under a secured password. Password access to the computer data was required for security purposes. To assure confidentiality, the participants were asked to provide their employee number, to compare the three data point results. The participants were placed in group panels in Qualtrics ™ to eliminate recognition of the participants.

## Data Analyses

Descriptive statistics such as frequency and percent or means, standard deviation, and range were used to describe participant characteristics and item and scale scores. Reliability via internal consistency was estimated using Cronbach's alpha for Palmore's Facts of Aging scores (Knowledge) and Kogan's Attitudes toward Old People (KOP) scores (Attitudes). Baseline comparisons of the intervention groups' knowledge and attitudes were calculated with independent sample t-tests or Mann-Whitney U tests. Pearson's correlation was used to estimate the linear relationship between knowledge and attitudes along with a scatter-plot. Repeated measures ANOVA (RM-ANOVA) was performed to analyze mean differences of attitudes and knowledge scores between groups at pre-intervention, immediate post-intervention and approximately 30 days post-intervention. The statistical analysis that was used for each question in this study for question 1 and 2 data is displayed in Table 5 in chapter IV. Additionally, a simple t-test

for comparisons among surveys, between group means and for each data point collection was done.

**Research Question 1**

What are the attitudes of ED nurses toward older adults?

To analyze research question number 1 a simple t-test was used to compare the scores of the Kogan's Attitude toward Old People between surveys and between groups for each data collection points.

**Research Question 2**

What is the knowledge of ED nurses toward older adults?

To analyze research question number 2 a simple t-test was used to compare the knowledge scores of ED nurses by using the Palmore's Facts of aging quiz among surveys and between groups for each data point collection

**Research Question 3**

What is the relationship between ED nurses' knowledge of the facts of aging and their attitudes toward older people before and after an educational intervention?

For research question number 3, a scatter plot was used along with Pearson's *r* correlation between knowledge scores and positive attitudes at pre-survey.

**Research Question 4**

Will an educational intervention aid in identifying ED nurses' behavioral intentions to change how they care for older adults?

For research question number 4, descriptive statistics using cross tabulation was used to compare categorical responses in percentage to identify behavior intentions changes

between surveys and between groups for each data collection point. Fisher's exact test was used to test the differences in proportions between pre-intervention responses and 4-week post intervention responses for behavioral intentions changes.

**Hypothesis 1**

Emergency department nurses who receive an educational intervention on specific geriatric nursing care will have higher overall aging knowledge scores at immediate post education intervention and four weeks post education intervention than those ED nurses who did not receive the educational intervention.

**Hypothesis 2**

Emergency department nurses who receive an educational intervention on specific geriatric nursing care will have higher positive attitude scores at immediate post education intervention and four weeks post education intervention than those ED nurses who did not receive the educational intervention.

To assess Hypothesis 1 and 2 repeated measures ANOVA were performed to test for group mean differences at immediate post education and four weeks post education. Separate analyses were performed for knowledge and attitude scores.

With a total sample size of 50 participants, with 25 per group and 3 repeated measures, an effect size of .404 can be detected in a repeated measures ANOVA with 80% power, assuming a two-sided Type I error rate of 0.05 and moderate correlation of repeated measures of 0.50.

## Human Subject Protection

An Institutional Review Board (IRB) application was submitted for approval to the University of North Carolina at Greensboro (UNCG) IRB as well as the healthcare system IRB of the five emergency departments where the study occurred. All IRB approvals were obtained prior to beginning the study. This study represented minimal risk to participants. Participants attending the geriatric workshop were required to sit at a desk for less than four hours. A hot breakfast was provided prior to the workshop. The participants received a 10-minute break during the workshop since the testing could cause emotional stress or discomfort. Participants were informed that it would take approximately 15-20 minutes to complete the survey. Participants were advised of their rights to withdraw from the study at any time without repercussion. Every effort was made to protect the identity of the participants in this study. Their employee ID was capture to be able to administer continuing educational hours. A separate panel question was developed to keep participants' identification separate from their survey results. No subjects will be identified in reports or publications of the study results. The principal investigator has completed the education requirements for human subjects' protection. Recruitment of participants was done via email, flyers and face-to-face opportunities. The participants were made aware of on the flyer if they attended the four hour geriatric workshop they would receive four free continuing education hours which they could use three of them for trauma requirements and one for stroke hour requirements for their job. Also, listed on the flyer was that door prizes would be drawn during the geriatric workshop.

## Instruments

Four instruments were used for data collection: (a) a researcher designed demographic information form, (b) Palmore's Facts of Aging Quiz I (PFAQ), (c) Kogan's Attitudes toward Older Adults (KOP), and (d) a researcher designed behavioral intention questionnaire (see Appendix A for survey tools). For this research study, three electronic surveys composed one valid instrument that measured attitudes toward older adults and one valid instrument that measured facts/knowledge about aging. The survey questions were designed so that the questions were presented in a non-threatening manner.

The online survey began with questions related to attitudes toward older adults followed by questions regarding knowledge/facts about aging. The third set of questions consisted of five questions pertaining to intentions regarding providing care to the older adult patients. Lastly the demographic questions were asked that included age, gender, race, years in nursing, if they received specific geriatric courses in their nursing program, highest level of education completed, and if they currently cared for an elderly family member.

### Demographic Information Questions

The demographic information form was developed for this study to obtain characteristics about the ED nurse participants. The individual information collected included the participant's ED place of employment, gender, race, age, number of years in nursing, number of years in current nursing role, if had a geriatric specific course in nursing school, and highest level of education achieved. .

**Palmore's Facts of Aging Quiz**

The PFAQ instrument contains 25 true and false questions (Palmore, 1992). The instrument was originally developed and used to stimulate discussion with sociology students regarding misconceptions about aging. Currently, the tool is used to assess knowledge about the elderly in a variety of settings (Palmore, 1992). The percentage of correct questions on the PFAQ is used to measure the participant's knowledge of older adults and aging.

The PFAQ instrument has been used widely over the past twenty-five years. The reliability of the instrument was determined through an internal consistency coefficient measured by Cronbach's alpha with scores ranging from 0.50 to 0.80 among studies and study populations (Palmore, 1992). The range of Cronbach's alpha scores indicates that the test has a medium to moderately high degree of internal consistency reliability (Waltz, Strickland, & Lenz, 2010).

Palmore measured content validity with his gerontological students by assessing their scores after completing a geriatric course, and then compared quiz results. Palmore (1992) found that after completing a geriatric course, the students who completed the course consistently scored higher on posttest than they did on the pretest. Multiple studies have shown that instrument results suggest that groups of subjects with similar education levels or backgrounds have similar mean scores, thus supporting the face validity of PFAQ (Cheng-Chang, 2010; Lambrinou, et al., 2009; Palmore, 1992).

**Kogan's Attitudes toward Older People Tool**

The Kogan's Attitudes toward Older People tool (KOP) was also given pre, immediate post-intervention, and thirty days post intervention to measure subject's attitudes toward the elderly. Kogan's tool has been used to assess an individual's positive and negative attitudes towards older adults with consideration given to norms, individual differences, stereotyping of older people, and misconceptions (Kogan, 1961). The instrument is a self-administered questionnaire consisting of 34 statements divided into two parts: 17 positive statements and a negative part consisting of 17 negative statements (Kogan, 1961). Reported in Snyder (2005) several studies have used this instrument to evaluate attitudes of students during gerontological education. A Likert scale is used to score participant response with 1= strongly agree to 7 = strongly agree and 4 = no response (Kogan, 1961). To score the results, the negative and positive items were scored and summed separately. A higher score indicates a higher negative or positive attitude, respectively. Reliability coefficients have been published as 0.6996 for the positive scale and 0.8449 for the negative scale (Kogan, 1961).

**Behavioral Intention Questions**

Behavioral intention was measured by asking five questions. Each item had the same stem with the addition of behaviors that had the participant rate their intention to perform a behavior within the next 30 days. One item was to evaluate participants' intention to voluntarily care for an older adult (Ajzen, 1991). A second item was used to evaluate the participant's intention in providing a safe room/environment for older adult patients in the emergency department. A third item was used to evaluate the participant's

intention to perform a falls assessment on their older adult patients. A fourth item was used to evaluate if the participants intend to assess their older patients for a nutritional consult. The last question evaluated the participants' intention to assess older adults for the presence of depression, dementia, and delirium (Polson & Croy, 2015). Limited studies were found that reported reliability or validity in testing intentions. Multiple studies have examined nursing intentions and behavior changes (Ajzen, 1991). When participants complete the four-week post-test survey, the stem of the five questions read, "I have _____ within the last 30 days". This demonstrated if the information obtained from the workshop influenced a behavioral change among ED nurses.

## Summary

The purpose of this quasi-experimental study was to examine the current knowledge and attitudes of emergency nurses and their intentions to change care behaviors to the older adult patient working in five emergency departments within a large hospital system. The study examined the influence of an educational workshop on ED nurses ' attitudes and knowledge toward older adults. The study evaluated if providing an educational geriatric workshop would change attitudes, improve knowledge and influence care behaviors toward older adults among ED nurses who attend the four-hour workshop compared to those ED nurses who did not attend. The geriatric workshop was successful in that ED nurses positive attitudes, knowledge, and their care behaviors toward older adults did improve. A grant application has been submitted to be able to offer future geriatric workshops available for those who were not able to attend.

# CHAPTER IV

# RESULTS

A Qualtrics survey was developed to measure emergency department (ED) nurses' knowledge and attitudes toward older adults. One day prior to the geriatric workshop, the survey was distributed via electronic mail to both those who were attending the workshop (experimental group) and those working the day of the workshop (control group). The pre and immediate-post surveys were open for a two-week period for the control group to complete. Electronic reminders were distributed throughout the two weeks to remind the control participants to complete the surveys. The ED nurses in the experimental group who had not completed the survey prior to arriving to the workshop completed the survey prior to the start of the educational workshop and were asked to complete the immediate-post survey at the conclusion of the workshop. Five nurses requested to complete the immediate-post survey later that day due to needing to return to work right away. Forty-five ED nurses attended the geriatric workshop. Forty-four ED nurses completed the pre-survey and forty- one completed the immediate-post survey the day of the workshop. One ED nurse attended the workshop but did not complete the surveys. Twenty- three nurses in the control group completed the pre-survey and fourteen of the twenty-three completed the immediate-post survey. Twenty-one of the twenty-three ED nurses in the control group completed the four-week post- survey. The four-week post Qualtrics survey was sent via email and was left open for a two-week period. Twenty-one of the twenty-three

ED nurses in the control group completed the four-week post-post survey. Thirty-eight ED nurses in the experimental group completed the four-week post-post survey.

## Sample

Participants in this study were Emergency Department (ED) registered nurses who were employed in one of five EDs, all of which belong to the same healthcare system. Recruitment occurred by email and face-to-face communications. In addition, notification flyers were hung in each ED. A total of 67 ED nurses participated in the study. Forty-four participated in the experimental (intervention) group and 23 in the control group. The hospital system employs approximately 300 ED nurses at the five EDs; the response rate for participation was 22 percent.

## Management of the Data

### Preliminary Examination of the Data

Descriptive statistics were calculated for all variables. Frequencies and percentages were assessed for categorical variables. Continuous variables were assessed with measures of central tendency, and graphic analysis box plots, histograms, and scatter plots were produced. Normality was checked for each of the continuous variables used in the statistical analysis by running the one sample Kolmogorov-Smirnov (K-S) test. The results were carefully reviewed, and the decision was made to use both graphic analysis of normal distribution and K-S test values to support the decisions regarding normal distribution of the data. Data were considered to be normally distributed if the values for skewness and kurtosis for graphic analysis were between -1.0 to + 1.0 (Huck, 2011) and for K-S if $p = \text{value} < 0.05$ (Polit, 2010). Results are shown in Table 1.

*Table 1*

*Normality Checking of Instruments at Pre-Intervention*

| | 1-sample K-S[4] test *P*-value | | Q-Q plot indicates Normality | |
|---|---|---|---|---|
| KOP [1]+ | ***Intervention*** | ***Control*** | ***Intervention*** | ***Control*** |
| 1 | 0.021 | 0.200 | Yes | Yes |
| 2 | 0.200 | 0.200 | Yes | Yes |
| 3 | 0.058 | 0.200 | Yes | Yes |
| KOP[2] - | | | | |
| 1 | 0.180 | 0.200 | Yes | Yes |
| 2 | 0.200 | 0.200 | Yes | Yes |
| 3 | 0.094 | 0.200 | Yes | Yes |
| PFAQ[3] | | | | |
| 1 | 0.035 | 0.081 | Yes | Yes |
| 2 | 0.015 | 0.200 | Yes | Yes |
| 3 | 0.200 | 0.200 | Yes | Yes |

*Note.* 1. KOP = Kogan Attitudes Toward Old People = + Positive, 2. Negative, 3. PFAQ Palmores' Facts on Aging Quiz, 4. Kolmogorov-Smirnov (K-S) test

## Missing Data

Missing values were evaluated in several ways. For example, one participant did not enter years of experience in the ED. This could be due to the way the question was asked on the survey (requesting years). This participant may have not worked a full year in the ED. Certain tools all had missing responses at different time points. After extensive data review with a statistician, it was found that one reason for the missing data might be that Qualtrics software did not open the screens for the participants to answer the survey questions at the set appointed times. A time-point index was used in Qualtrics to send surveys over select times, but an error in its implementation allowed for some questions to not be displayed for a random subset of participants. However, this only affected a few participants on demographics and behavioral interventions items. Six

participants did not receive all demographic questions. Those six participants were emailed and asked to complete the questions within the same week of the attending the workshop through another Qualtrics link, and the missing data were obtained. Additionally, behavioral intention (BI) questions were randomly skipped for some participants. In the pre-survey, 16 experimental participants did not receive the questions, and in the immediate post-survey, six experimental participants did not receive the questions. All control group participants received the BI questions.

While cleaning the data, it was also noted that three experimental group participants did not complete the PFAQ in the immediate post-survey, and one did not complete it in the four week post-survey. In the control group, two participants did not complete the PFAQ during the pre-survey. In reviewing the data for the KOP positive and negative survey, it was found that three experimental participants out of the 44 did not complete the PFAQ in the immediate post-survey, and one did not complete it in the four week post-survey.

Impact of missing data on conclusions from repeated measures ANOVA was examined in sensitivity analyses using multiple imputation. Twenty imputations were calculated in these analyses. Because the SPSS version 23 Multiple Imputation procedure does not fully carry out multiple imputation for repeated measures ANOVA in particular, these sensitivity analyses were performed using MI procedures in STATA version 13.1. Time by group interactions from pooled testing after multiple imputation were not significant for PFAQ ($F(2,579.6) = 1.61$, $p = 0.201$), KOP positive scores ($F(2,500.7) = 0.72$, $p = 0.486$), or KOP negative scores ($F(2,541.7) = 0.80$, $p = 0.449$).

Therefore, conclusions from main analyses of change over time were consistent under listwise deletion and after multiple imputation.

## Reliability of the Instruments

Reliability coefficient were calculated for the PFAQ, KOP positive and negative scores, and BI questions. The Cronbach's alpha for internal consistency was good with scores for the positive and negative KOP scores ranging from 0.712 to 0.835 (see Table 3). The Cronbach alpha coefficient for KOP Positive score was 0.712 and Negative score was 0.835 indicating the instruments had adequate reliability with a level greater than .70 (Polit, 2009). The KR-20 internal consistency was 0.327, which is not considered to be good. The reason for a low score for PFAQ was that seven out of 25 questions had means above 0.9 and three questions had means of .03 or lower. The BI questions were piloted on a group of 12 nurses for content validity and reliability prior to the geriatric workshop in the hospital. Results are shown in Table 2.

*Table 2*

*Descriptive Statistics and Reliability of Instruments at Pre-Intervention*

| ***Measure*** | ***No. items*** | ***Possible score range*** | ***Observed score range*** | ***Mean ± SD or N (%) Yes*** | ***Reliability*** |
|---|---|---|---|---|---|
| KOP[1] | | | | | |
| Positive | 17 | 17 – 119 | 53 – 92 | 78.58 ± 8.85 | 0.712 |
| Negative | 17 | 17 – 119 | 22 – 71 | 44.61 ± 11.04 | 0.835 |
| PFAQ | 25 | 0 – 25 | 8 – 18 | 13.37 ± 2.23 | 0.327 |
| BI 1 _10[2] | 1 | Yes/No | n/a | 29 (43) | n/a |
| BI 2 _16 | 1 | Yes/No | n/a | 47 (94) | n/a |
| BI 3_ 21 | 1 | Yes/No | n/a | 49 (98) | n/a |
| BI 4_ 18 | 1 | Yes/No | n/a | 39 (78) | n/a |
| BI 5_ 20 | 1 | Yes/No | n/a | 47 (94) | n/a |

*Note*. $n = 50$ for BI items due to Qualtrics issue; Cronbach's alpha for Kogan and KR-20 for Palmore. 2. BI Items as described in Table 3.

*Table 3*

*Behavioral Intervention Abbreviations for Items*

| ***Abbreviation*** | ***Wording in Pre and Immediate Post*** | ***Wording in 4 week post*** |
|---|---|---|
| BI_10 | I intend to voluntarily request to care for an older adult | I have voluntarily requested to care for an older adult patient within the last 30 days. |
| BI_16 | I intend to purposely focus on providing a safe environment for older adult patients within the next 30 days. | I have purposely focused on providing a safe environment for older adult patients within the last 30 days |
| BI_21 | I intend to perform a falls assessment on my older adult patients with the next 30 days. | I have performed a falls assessment on my older adult patients within the last 30 days |
| BI_18 | I intend to assess my older adult patients' need for nutritional consult in the next 30 days. | I have assessed my older adult patients' need for nutritional consult within the last 30 days. |
| BI_20 | I intend to assess my older adult patients for signs of depression, dementia, and delirium in the next 30 days. | I have assessed my older adult patients for signs of depression, dementia, and delirium within the last 30 days. |

*Note.* Behavioral Intention = B

## Sample Demographics

Demographic data were collected from all participants, and the results are shown in Table 4. A total of 67 nurses working for one of the five EDs within one large system participated in either the experimental or control group. The overall sample was 89.6 %

female and 10.4 % male. The mean age for the entire sample was 40 years (SD+ 13.51; range 23-69 years). The experimental group was 86.4% female, and 13.6 % male and had a mean age of 40 years. The control group was 95.7% female, 4.3 % male, and had a mean age of 39 years. The ethnicity of the entire sample self-identified as 92.5% white, 4.5% black, 1.5% Hispanic, and 1.5% Asian. Analysis of the experimental group participants revealed 90.9% white, 4.5% black, 2.3% Hispanic, and 2.3% Asian. Analysis of the control group participants showed their ethnicity as 95.7% white and 4.3% black. More than half of the participants had a baccalaureate degree in nursing (56.7 %), and 16.4% had a master's degree. The remaining participants held an associate degree (25.4%) or diploma (1.5%). Breakdown of the highest education level in the experimental group found 59.1% bachelors, 20.5% masters, 18.2% associates, , and 2.3% diploma degree. Breakdown of the highest education level in the control group reported 39.1% associate, 52.2% bachelors, and 8.7% masters.

The mean years of tenure in the ED for the study participants was 11.62 years (SD= 11.64), with minimum of less than 1 year and a maximum of 40 years. The average years of tenure for the experimental group working in the ED was 11.49 years (SD=11.87), with a maximum of 40 years. The average years of tenure for the control group working in the ED was 11. 87 years (SD= 11.50) and maximum of 35 years. The entire sample was split nearly equally between those who graduated before 2005 and those who graduated after 2005 (47% vs. 52% respectively).

More than half of the participants did not have a national certification (59.7%), while (40.3%) reported having a national certification. Of the participants in the

experimental group, 43.2% reported they had a national certification and 56.8 % did not report having a certification. Of the control group, 34.8% of participants reported they had a national certification, and 65.2% did not. Only six percent of the entire sample reported holding a gerontological certification.

An overwhelming 80.6% of all participants reported they had not had any specialized work experience with older adults. Twenty-two percent of the experimental participants reported they had specialized older adult work experience compared to 13% of the control participants. Out of the 67 participants, 4.5% reported they were currently providing care for an older adult in their home.

Sample size was the major difference between the experimental and control groups. As seen in Table 3, there were insignificant differences in demographic variables between the two groups. The mean age of both groups was approximately the same at 40 years, as was the mean years of 11 years. The control group was less diverse, with only four percent African Americans. More master's-prepared nurses were also the experimental group. Kogan's positive attitude score had a mean of 79.86 (SD = 8.33 pre-intervention compared to the experimental group mean score of 77.93 (SD = 9.12). The experimental group had a slightly higher Palmore's Facts on Aging score with a mean of 13.50 (SD = 2.19) compared to the control group mean score of 13.10 (SD = 2.34).

*Table 4*

*Participant Characteristics at Pre-Intervention (N=67)*

| ***Characteristic*** | ***Overall (N = 67)*** | ***Intervention (N = 44)*** | ***Control (N = 23)*** | ***P- value*** |
|---|---|---|---|---|
| Age (years) | 40 ± 13.51 | 40.07 ± 14.28 | 39.87 ± 12.21 | 0.955 |
| Gender | | | | 0.238 |
| Male | 7 (10.4) | 6 (13.6) | 1(4.3) | |
| Female | 60 (89.6) | 38 (86.4) | 22 (95.7) | |
| Missing | 0 | 0 | 0 | |
| Years worked in ED | 11.62 ± 11.64 | 11.49 ±11.87 | 11.87 ± 11.50 | 0.936 |
| Missing data (n=1) | 1 | 1 | 1 | |
| Ethnicity | | | | 0.781 |
| Black | 3 (4.5) | 2 (4.5) | 1 ( 4.3) | |
| White | 62 (92.5) | 40 (90.9) | 22 (95.7) | |
| Hispanic | 1 (1.5) | 1 (2.3) | 0 (0) | |
| Asian | 1 (1.5) | 1 (2.3) | 0 (0) | |
| Missing | 0 | 0 | 0 | |
| Highest Degree Obtained | | | | 0.209 |
| Diploma | 1 (1.5) | 1 (2.3) | 0 (0) | |
| Associate | 17 (25.4) | 8 (18.2) | 9 (39.1) | |
| Bachelor's | 38 (56.7) | 26 (59.1) | 12 (52.2) | |
| Master's | 11 (16.4) | 9 (20.5) | 2 (8.7) | |
| Missing | 0 | 0 | 0 | |
| Graduated before 2005 | | | | 0.730 |
| Yes | 33 (49.3) | 21 (47.7) | 12 (52.2) | |
| No | 34 (50.7) | 23 (52.3) | 11 (47.8) | |
| Missing | 0 | 0 | 0 | |
| National Nursing Certification | | | | |
| Yes | 27 (40.3) | 19 (43.2) | 8 (34.8) | 0.443 |
| No | 40 (59.7) | 25 (56.8) | 15 (65.2) | |
| Missing | 0 | 0 | 0 | |
| Geriatric Certification | | | | 0.685 |
| Yes | 4 (6.0) | 3 (6.8) | 1 (4.3) | |
| No | 40 (94.0) | 41 (93.2) | 22 (95.7) | |
| Missing | 0 | 0 | 0 | |
| Older adult work experience | | | | |
| Yes | 13 (19.4) | 10 (22.7) | 3 (13.0) | 0.341 |
| No | 54 (80.6) | 34 (77.3) | 20 (87.0) | |
| Missing | 0 | 0 | 0 | |
| Currently caring for older adult in home | | | | |
| Yes | 3 (4.5) | 2(4.5) | 1 (4.3) | 0.957 |
| No | 64 (95.5) | 42 (95.5) | 22 (95.7) | |
| Missing | 0 | 0 | 0 | |

*Note.* All numbers are Mean ± SD or N (%); ED = Emergency Departments.

## Descriptive Statistics of the Instruments

Positive and negative attitudes toward older adults were measured using the Kogan's Old People scale (KOP) (Kogan, 1961). The instrument is a self-administered questionnaire consisting of 34 statements divided into two parts: 17 positive statements and 17 negative statements (Kogan, 1961). Palmore's Facts of Aging Quiz was used to measure ED nurses' knowledge about the elderly (Palmore, 1992). The PFAQ instrument contains 25 true and false questions (Palmore, 1992). The percentage of correct questions on the PFAQ was used to measure the participant's knowledge of older adults and aging. Five questions were developed using the Theory of Planned Behavior to measure ED nurses' intent to change their behavior after attending the geriatric workshop in regards to caring for the older patient (Ajzen, 1991). See Table 5 for the descriptive statistics for the study instruments across time points.

*Table 5*

*Descriptive Statistics for Study Instruments across Time-Points*

| ***Tool*** | ***Pre-Survey*** | ***Immediate Post*** | ***Post-Post*** |
|---|---|---|---|
| Kogan's Positive | | | |
| Intervention | 77.93 ± 9.12 | 81.59 ± 10.13 | 81.89 ± 8.29 |
| Control | 79.86 ± 8.33 | 81.13 ± 10.85 | 82.10 ± 9.14 |
| Kogan's Negative | | | |
| Intervention | 44.18 ± 9.92 | 43.02 ± 11.69 | 43.18 ± 9.56 |
| Control | 45.18 ± 13.22 | 47.67 ± 12.31 | 45.10 ± 9.90 |
| Palmore | | | |
| Intervention | 13.50 ± 2.19 | 14.85 ± 1.52 | 14.35 ± 1.79 |
| Control | 13.10 ± 2.34 | 13.53 ± 2.41 | 13.47 ± 2.30 |
| BI _10 | | | |
| Intervention | 20 (71) | 32 (91) | 20 (54) |
| Control | 9 (44) | 4 (27) | 8 (38) |
| BI _16 | | | |
| Intervention | 26 (93) | 35 (100) | 36 (97) |
| Control | 21 (95) | 14 (93) | 19 (90) |
| BI_ 21 | | | |
| Intervention | 27 (96) | 35 (100) | 35 (98) |
| Control | 22 (100) | 15 (100) | 20 (95) |
| BI _ 18 | | | |
| Intervention | 22 (79) | 33 (94) | 21 (57) |
| Control | 17 (77) | 11 (73) | 8 (38) |
| BI_ 20 | | | |
| Intervention | 26 (96) | 35 (100) | 33 (89) |
| Control | 21 (95) | 14 (93) | 19 (90) |

*Note*. Mean ± Standard Deviation (SD) for Kogan and Palmore scores; Behavioral Intention (BI) N = Yes (%) for each question.

**Emergency Department Nurses' Attitudes toward the Older Adult**

Part 1 of the survey questionnaire used the Kogan's Attitude toward Old People (KOP) tool to measure attitudes of ED nurses. Both the experimental and control participants were instructed to choose using a Likert scale ranging from strongly disagree to strongly agree for each of the 34 statements. The scale gave a score of one for strongly disagree and a score of seven for strongly agree. There were 17 positive statements and 17 negative statements. The highest total score for both the positive and negative statements could equal 119. The negative and positive items were scored and summed separately. A higher score indicated a negative or positive attitude, respectively. The mean scores (M) and standard deviation (SD) in attitudes toward older adults 65 and older for both the experimental and control are reported in Table 5 above.

**Emergency Department Nurses' Knowledge on Older Adults**

Part 2 of the survey questionnaire used the Palmore's Facts of Aging Quiz (PFAQ I) to measure ED nurses' knowledge on older adults. Both the experimental and control participants were instructed to choose true or false for each of the 25 statements. If the participant answered the question correctly, they were given a score of 1 and if they answered incorrectly they were given a score of zero. A total score of 25 could be achieved if all questions were answered correctly. The percentage of correct questions on the PFAQ was used to measure the participant's knowledge of older adults and aging. The mean scores (M) and standard deviation (SD) in knowledge on older adults for all three data collection points for both experimental and control are also reported in Table 5.

**Behavioral Intention**

Part 3 of the survey questionnaire consisted of five questions regarding participants' intentions to change behaviors regarding care of older adults. The pre-survey and immediate post- survey contain the same stem of "I intend to ___," while the four-week post- survey uses the stem of "I have ___ within the last 30 days". The participants were asked to answer yes or no to the behavioral intention questions. The categorical variables were reported in percentage of participants who answered yes to each question asked. The results are reported in Table 5.

## Discussion of Findings Related to Research Questions and Hypothesis

The results for each of the study research questions and hypothesis follow below.

**Research Question 1**

What are the attitudes of ED nurses toward older adults?

The current attitudes of ED nurses toward older adults using the Kogan's Attitudes Toward Old People tool at pre-intervention were found to result in an overall mean positive score across groups of 78.58 (*SD* = 8.85) out of a possible highest score of 119 (see Table 2). At pre-intervention, mean negative score across groups was 44.61 *(SD* = 11.04) out of a possible 119.

**Research Question 2**

What is the knowledge of ED nurses about older adults?

The current knowledge of ED nurses about older adults using the Palmore's Facts of Aging tool pre-intervention were found to be overall mean knowledge score across groups was 13.84 (SD = 2.12) out of a possible highest score of 25.

*Table 6*

*Paired T-tests for Within-Group Change*

| ***Tool*** | ***Kogan's Positive*** | ***Kogan's Negative*** | ***Palmore*** |
|---|---|---|---|
| Intervention | | | |
| Immediate Post – Pre | 3.829 | -1.122 | 1.463 |
| | 3.432 (40) | -0.818 (40) | 4.742 (40) |
| | < 0.001 | 0.418 | <0.001 |
| Post – Pre | 4.053 | -1.789 | 0.838 |
| | 3.956 (37) | -1.942 (37) | 2.167 (36) |
| | < 0.001 | 0.060 | 0.037 |
| Control | | | |
| Immediate Post – Pre | 4.286 | -0.071 | 0.429 |
| | 2.604 (13) | -0.056 (13) | 0.945 (13) |
| | 0.022 | 0.956 | 0.362 |
| Post-Post – Pre | 3.000 | -1.750 | 1.053 |
| | 2.153 (18) | -1.174 (19) | 1.688 (18) |
| | 0.045 | 0.255 | 0.109 |

*Note*. Numbers presented are mean difference (*md*), *t* test statistic (*do*), *P*-value for Intervention versus control

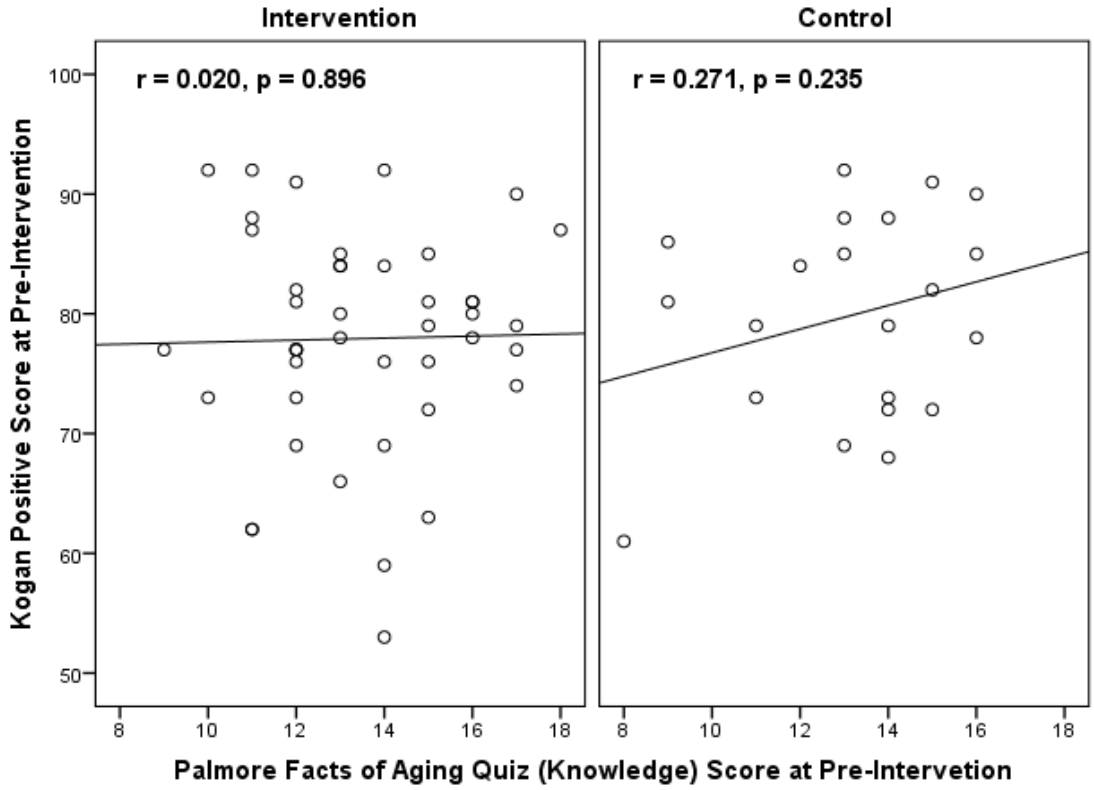
**Research Question 3**

What is the relationship between ED nurses' knowledge of the facts of aging and their attitudes toward older people before and after an educational intervention?

Scatter plots along with Pearson's correlation (*r*) between knowledge and positive attitudes scores were assessed at pre-survey, immediate post-survey, and four-week post-survey. Results are in Figure 2.

*Figure 2*

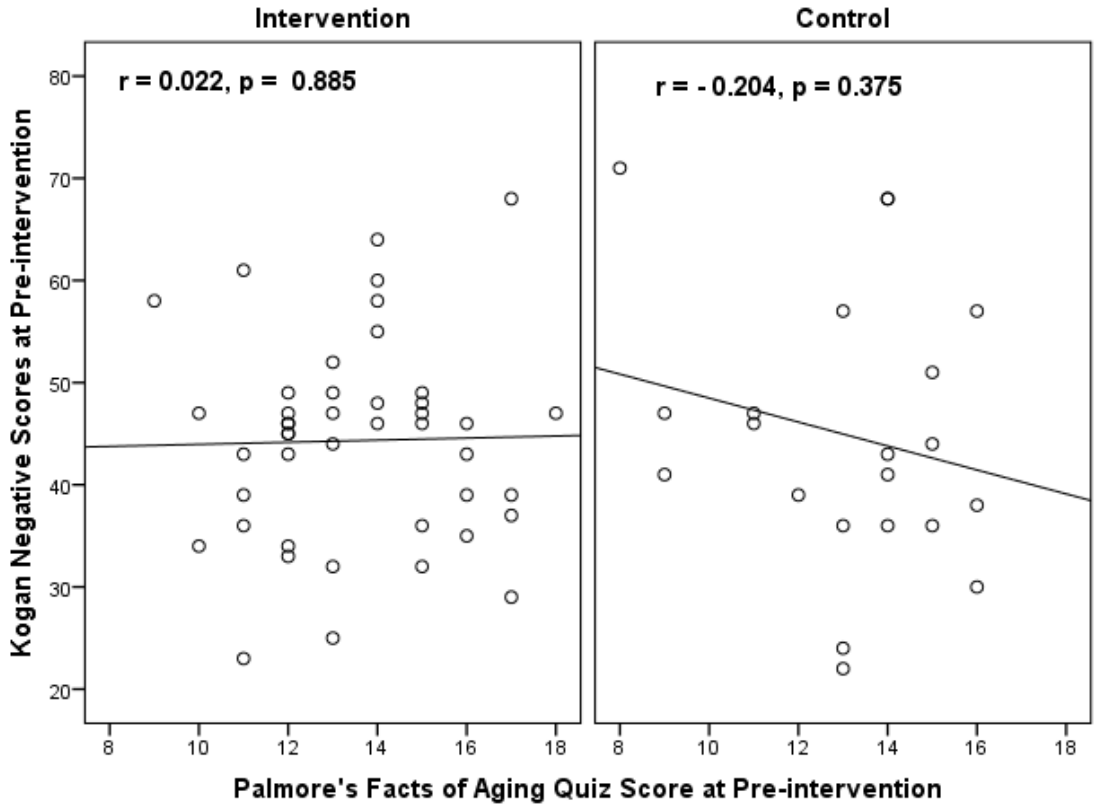
*Scatterplot of PFAQ (Knowledge) vs. KOP (Positive Attitudes) at Pre-Survey with Fit Lines*




The bivariate relationship between PFAQ scores and KOP positive attitudes scores at pre-survey are shown in Figure 3. The trends appears to be positive for both groups, implying that as the knowledge score increases so does the attitude score, although the finding was not statistically significant (Intervention group $p = 0.896$, Control group $p = 0.235$).

*Figure 3*

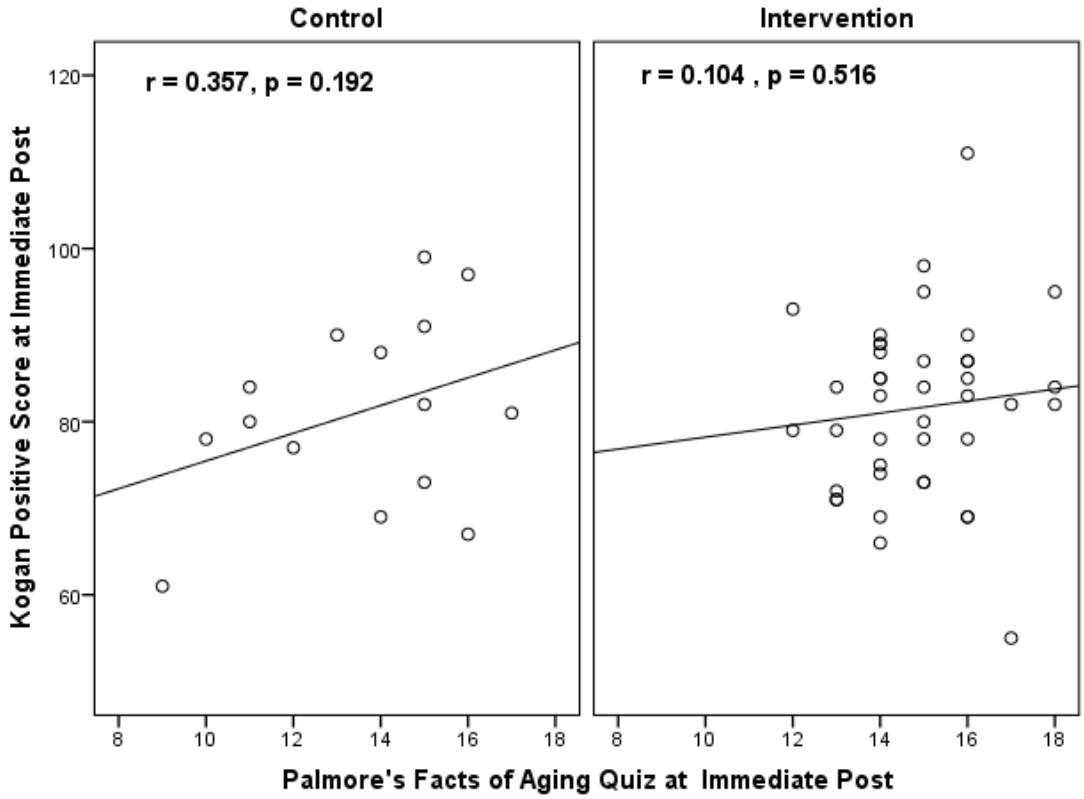
*Scatterplot of PFAQ (Knowledge) vs. KOP (Negative Attitudes) at Pre-Survey with Fit Lines*




The bivariate relationship between PFAQ scores and KOP negative attitudes scores at pre-survey are shown in Figure 3. The trends appears to be flat for intervention, implying that as the knowledge score increases, negative attitude scores increase modestly, although the finding was not statistically significant for the Intervention group (p=0.885). The trend for the control group appears be negative between knowledge and attitudes scores, but not statistically significant (p = 0.375).

*Figure 4*

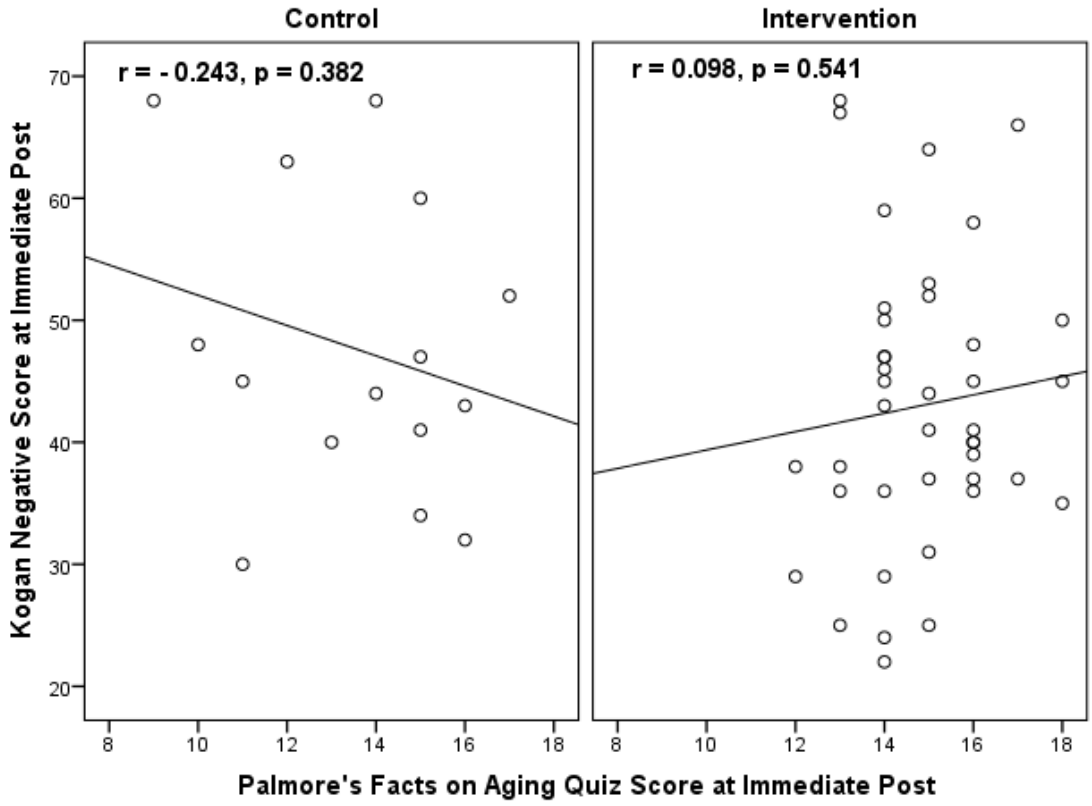
*Scatterplot of PFAQ (Knowledge) vs. KOP (Positive Attitudes) at Immediate Post-Survey with Fit Lines*




The bivariate relationship between PFAQ scores and KOP Positive attitudes scores at immediate post-survey are shown in Figure 4. The trends appears to be positive for both groups, implying that as the knowledge score increases, so does the attitude score, although the finding was not statistically significant for the intervention group (p= 0.516) or the control group (p = 0.192).

*Figure 5*

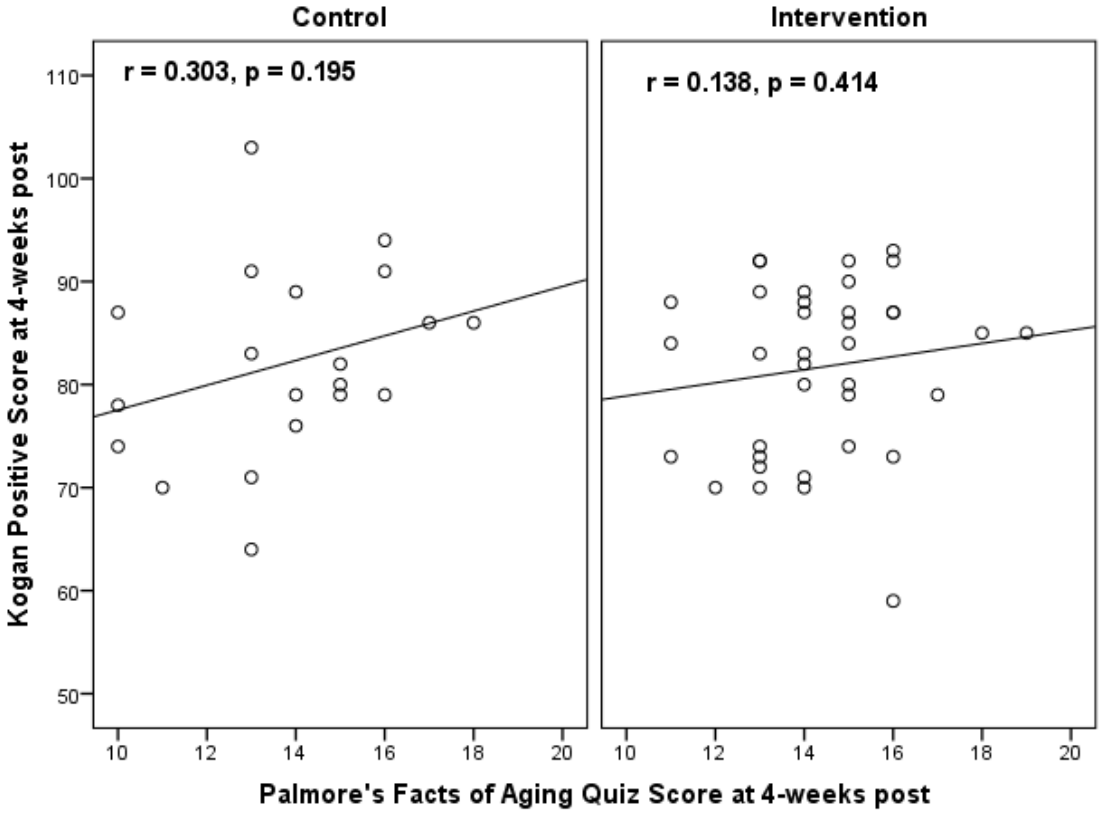
*Scatterplot of PFAQ (Knowledge) vs. KOP (Negative Attitudes) at Immediate Post-Survey with Fit Lines*




The bivariate relationship between PFAQ scores and KOP positive attitudes scores at immediate post-survey are shown in Figure 5. The trend appears to be reasonably linear and positive for the intervention group, implying that as the knowledge score increases, the negative attitude score decreases. The trend for the control group appears to be negative, implying that as the knowledge scores increase, KOP negative score increases. Both group findings showed not to be statistically significant (Intervention p = 0.541, Control p = 0.382).

*Figure 6*

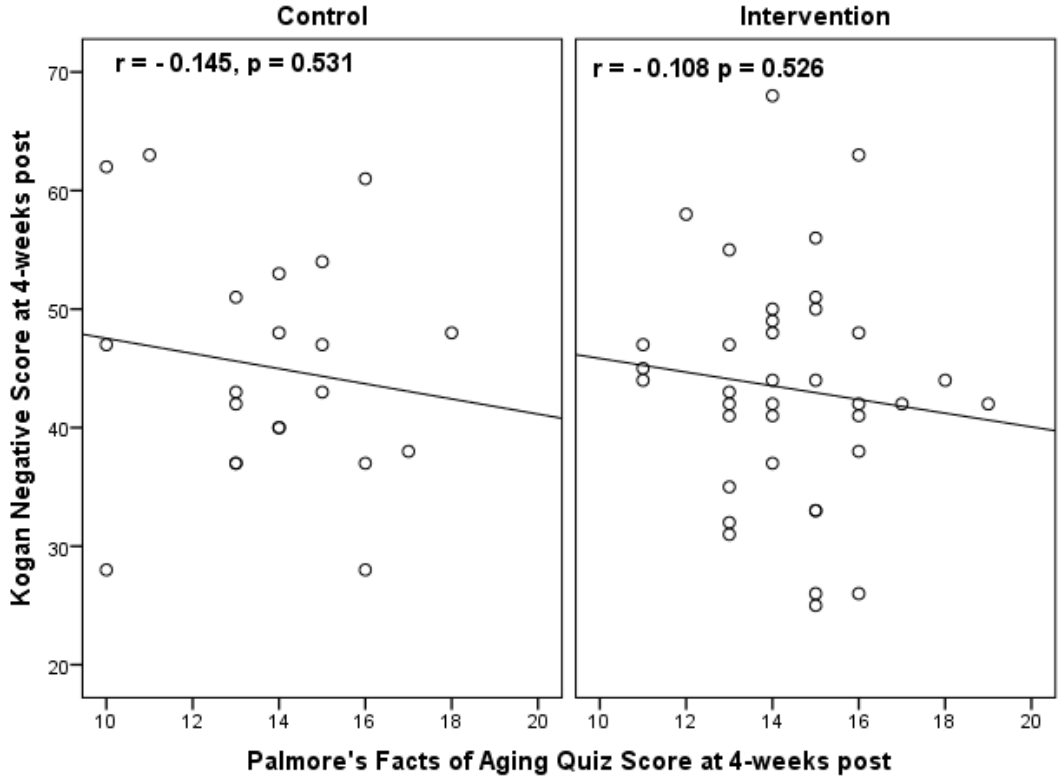
*Scatterplot of PFAQ (Knowledge) vs. KOP (Positive Attitudes) at 4-weeks Post-Survey with Fit Lines*




The bivariate relationship between PFAQ scores and KOP positive attitudes scores at four-weeks post-intervention are shown in Figure 6. The trends appears to be reasonably linear and positive for both groups, implying that as the knowledge score increases, so does the positive attitude score, although the finding was not statistically significant for either intervention group (p=0.414) or the control group (p = 0.195)

*Figure 7*

*Scatterplot of PFAQ (Knowledge) vs. KOP (Negative Attitudes) at 4-weeks Post-Intervention with Fit Lines*




The bivarariate relationship between PFAQ scores and KOP negative attitudes scores at four-weeks post-intervention are shown in Figure 7. The trends for both groups appears to be negative, implying that as the knowledge score increases, the negative attitude scores go down. Trends were not statistically significant for either intervention group (p=0.526) or the control group (p = 0.531).

**Research Question 4**

Will an educational intervention aid in identifying ED nurses' behavioral intentions to change how they care for older adults?

For this question, the results from pre-survey, immediate post-survey and four-week post- survey were compared to evaluate if the educational intervention influenced the experimental group's behavior intentions to change how they care for older adults. The only question that showed a statistically significant difference between the experimental group and the control group was BI question 10. This question was "I intend to voluntarily request to care for an older adult patient in the next 30 days" ($p = 0.30$). Specifically, 71% of the experimental group said they intended to request to care for an older adult patient, while only 41% of the control group answered yes to this question. For all BI questions, the experimental group had a higher percentage of yes versus no responses when compared to the control, implying that the educational intervention did influence their intentions to change their behavior in caring for older adult patients. The results are displayed in Table 7 and Table 8.

*Table 7*

*Descriptive Statistics for Study Behavioral Questions (BI) across Time-Points*

| ***Tool*** | ***Pre-Survey*** | ***Immediate Post*** | ***Post-Post*** |
|---|---|---|---|
| *BI _10 | | | |
| Intervention | 20 (71) | 32 (91) | 20 (54) |
| Control | 9 (44) | 4 (27) | 8 (38) |
| *BI _16 | | | |
| Intervention | 26 (93) | 35 (100) | 36 (97) |
| Control | 21 (95) | 14 (93) | 19 (90) |
| *BI_ 21 | | | |
| Intervention | 27 (96) | 35 (100) | 35 (98) |
| Control | 22 (100) | 15 (100) | 20 (95) |
| *BI _ 18 | | | |
| Intervention | 22 (79) | 33 (94) | 21 (57) |
| Control | 17 (77) | 11 (73) | 8 (38) |
| *BI_ 20 | | | |
| Intervention | 26 (96) | 35 (100) | 33 (89) |
| Control | 21 (95) | 14 (93) | 19 (90) |

*Note*. Behavioral Intention (BI) N= Yes (%) for each question

*Table 8*

*Fisher's Exact Test P-Value for Group Differences at 4-Week Post*

| ***BI item*** | ***Intervention at 4-week post*** | ***Control at 4-week post*** | ***Fisher's exact p-value*** |
|---|---|---|---|
| BI _10 | 20 (54) | 8 (38) | 0.284 |
| BI _16 | 36 (97) | 19 (90) | 0.547 |
| BI_ 21 | 35 (98) | 20 (95) | 1.000 |
| BI _18 | 21 (57) | 8 (38) | 0.274 |
| BI_ 20 | 33 (89) | 19 (90) | 1.000 |

*Note*. Numbers presented are N (%) Yes at 4-week post.

**Hypothesis 1**

Emergency department nurses who receive an educational intervention on geriatric nursing care will have higher overall aging knowledge scores at immediate post education

intervention and four weeks post education intervention than those ED nurses who do not receive the educational intervention.

For RM-ANOVA of Palmore's Facts of Aging scores, assumptions of sphericity ($p$ = 0.005) requiring the use of Huynh-Feldt correction $\epsilon$ = .877 and equal group covariance matrices ($p$ = 0.444) were reasonably satisfied. Making these assumptions, analysis revealed a main effect of time ($F$(2,96) = 15.955, $p$ = 0.003), no main effects of experimental vs. control group ($F$(1,48) = 1.717, $p$ = 0.196), and no significant interaction effects of group by time-point ($F$(1.753,84.165) = 2.295, $p$ = 0.114). Effect sizes using partial eta-squared were small for group main effects ($\eta^2_p$ = 0.35) and group by time interaction effects ($\eta^2_p$ = 0.046). Results are displayed in Table 9 and Figure 8.

*Table 9*

*Mixed Between-Within Repeated Measures ANOVA for PFAQ Scores Using Listwise Deletion*

| ***Source*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***p*** | $\eta^2_p$ |
|---|---|---|---|---|---|---|
| Between Subjects | | 49 | | | | |
| Group | 14.750 | 1 | 14.750 | 1.717 | 0.196 | 0.35 |
| Error | 412.476 | 48 | 8.593 | | | |
| Within Subject | | 87.671 | | | | |
| Time | 27.976 | 1.753 | 15.955 | 6.705 | 0.003 | 0.123 |
| Time × Group | 9.576 | 1.753 | 5.461 | 2.295 | 0.114 | 0.046 |
| Error | 200.278 | 84.165 | 2.380 | | | |
| Total | 665.056 | 136.671 | | | | |

*Note*. PFAQ Palmore's facts of aging quiz. Sphericity was not assumed as Mauchly's sphericity test $p$ = 0.005, therefore degrees of freedom were corrected using Huynh-Feldt correction $\epsilon$ = .877. Equal group covariance was assumed as Box's $M$ test $p$ = 0.334.

*Figure 8*

*Trends Over Time from Mixed Between-Within Repeated Measures ANOVA for Means of Palmore's Facts of Aging Quiz Scores Using Listwise Deletion*

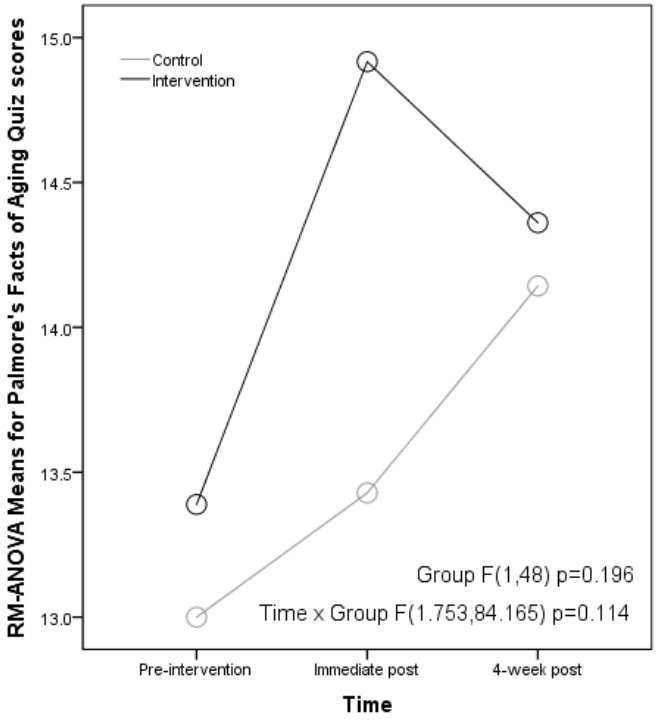



Figure 8 indicates that the intervention group knowledge mean score improved at immediate-post intervention and remained higher than at pre-intervention at four-week post intervention. For the control group, mean scores went up very little at immediate post-intervention compared to the intervention group. At four-week post intervention, the control knowledge mean score did increase but never as high as the intervention group. Overall, the change over time between groups was not statistically significantly different ($p = 0.114$).

**Hypothesis 2**

Emergency department nurses who receive an educational intervention on geriatric nursing care will have higher positive attitude scores than those ED nurses who did not receive the educational intervention.

For RM-ANOVA of Kogan's positive scores, assumptions of sphericity ($p = 0.600$) and equal group covariance matrices ($p = 0.334$) were reasonably satisfied. Making these assumptions, analysis revealed a main effects of time ($F(2,96) = 11.444$, $p = 0.001$), no main effects of experimental vs. control group ($F(1,48) = 0.118$, $p = 0.732$), and no significant interaction effects of group by time-point ($F(2,96) = 0.418$, $p = 0.660$). Effect sizes using partial eta-squared were small for group main effects ($\eta^2_p = 0.002$) and group by time interaction effects ($\eta^2_p = 0.009$). See Tables 10 and 11 and Figures 8 and 9.

*Table 10*

*Mixed Between-Within Repeated Measures ANOVA for Kogan's Positive Scores Using Listwise Deletion*

| ***Source*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***p*** | $\eta^2_p$ |
|---|---|---|---|---|---|---|
| Between Subjects | | 49 | | | | |
| Group | 25.557 | 1 | 25.557 | 0.118 | 0.732 | 0.002 |
| Error | 10,357.943 | 48 | 215.790 | | | |
| Within Subject | | 100 | | | | |
| Time | 402.073 | 2 | 201.037 | 11.444 | <0.001 | 0.193 |
| Time × Group | 14.686 | 2 | 7.343 | 0.418 | 0.660 | 0.009 |
| Error | 1,686.474 | 96 | 17.567 | | | |
| Total | 12,486.73 | 149 | | | | |

*Note*. Sphericity was assumed as Mauchly's sphericity test $p = 0.600$. Equal group *covariance was assumed as Box's M test p = 0.334.*

*Figure 9*

*Trends Over Time from Mixed Between-Within Repeated Measures ANOVA for Means of Kogan's Positive Scores Using Listwise Deletion*

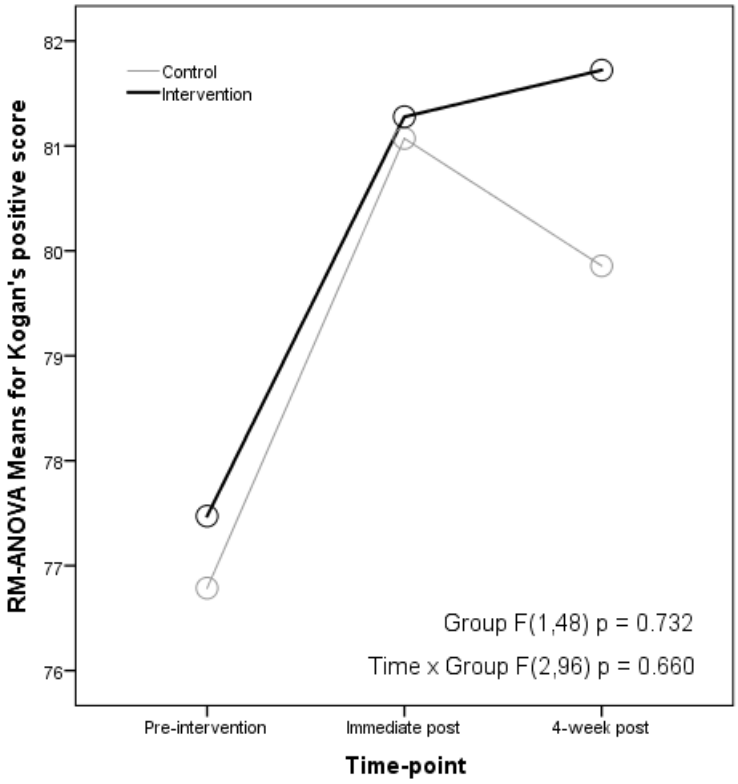



Figure 9 indicates that the intervention group's positive mean score improved at immediate-post intervention and remained higher at four-week post intervention. The control group mean score went up at post-intervention but not quite as high when compared to the intervention group. At four-week post-intervention the control positive mean score decreased from immediate post-intervention. Overall, the change over time between groups was not statistically significantly different ($p = 0.660$).

*Table 11*

*Mixed Between-Within Repeated Measures ANOVA for Kogan's Negative Scores Using Listwise Deletion*

| ***Source*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***p*** | $\eta^2_p$ |
|---|---|---|---|---|---|---|
| Between Subjects | | 49 | | | | |
| Group | 164.267 | 1 | 164.267 | 0.501 | 0.483 | 0.100 |
| Error | 15,739.360 | 48 | 327.903 | | | |
| Within Subject | | 100 | | | | |
| Time | 64.700 | 2 | 32.350 | 1.394 | 0.253 | 0.028 |
| Time × Group | 8.753 | 2 | 4.377 | 0.189 | 0.828 | 0.004 |
| Error | 2,227.140 | 96 | 23.199 | | | |
| Total | 18,204.22 | 149 | | | | |

*Note*. Sphericity was assumed as Mauchly's sphericity test $p = 0.068$. Equal group covariance was assumed as Box's $M$ test $p = 0.444$.

For RM-ANOVA of Kogan's negative scores, assumptions of sphericity ($p = 0.068$) and equal group covariance matrices ($p = 0.444$) were reasonably satisfied. Making these assumptions, analysis revealed no main effects of time ($F(2,96) = 1.394$, $p = 0.253$), no main effects of experimental vs. control group ($F(1,48) = 0.501$, $p = 0.483$), and no significant interaction effects of group by time-point ($F(2,96) = 0.189$, $p = 0.828$). Effect sizes using partial eta-squared were small for group main effects ($\eta^2_p = 0.100$) and group by time interaction effects ($\eta^2_p = 0.004$).

*Figure 10*

*Trends Over Time from Mixed Between-Within Repeated Measures ANOVA for Means of Kogan's Negative Scores Using Listwise Deletion*

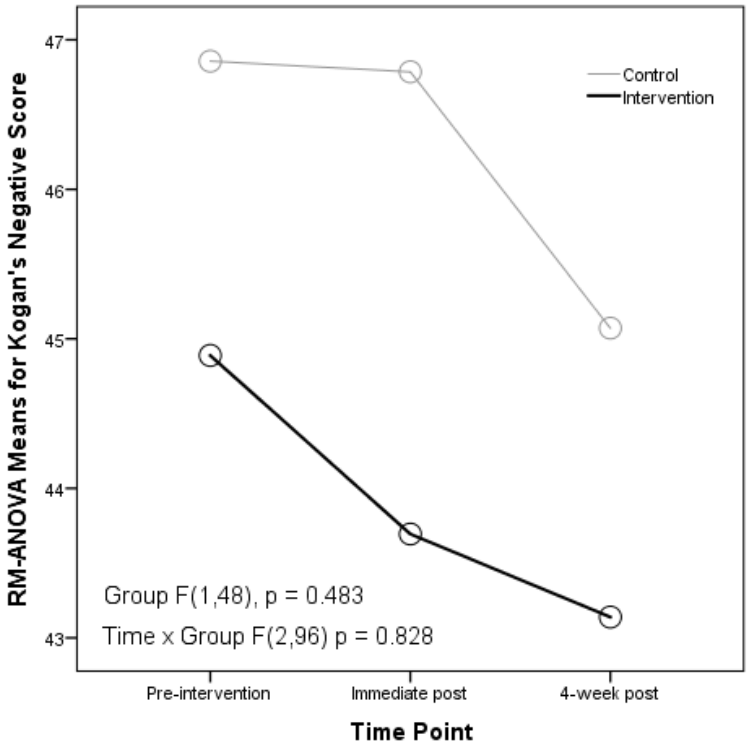



Figure 10 indicates that the intervention group's negative mean score decreased at immediate-post intervention and remained lower at four-week post intervention. The control group negative attitude mean scores decreased at post-intervention more than the intervention group and again at four-week post intervention. Overall, the change over time between groups was not statistically significantly different ($p = 0.828$).

## Program Evaluation

In addition to answering specific research questions and hypotheses, a program evaluation of the geriatrics workshop was conducted with the last survey at the four-week

post- time point. The experimental group participants were asked to use a seven point Likert scale to rate three questions concerning their views of the geriatric workshop. The participants reported "above agree" on the Likert scale that the workshop, time spent at the workshop and if they would recommend the workshop to a co-worker for their responses. Overall, the mean scores were shown to be favorable for the majority of the participants. Results are displayed in Table 12.

*Table 12*

*Program Evaluation Intervention at 4-Week Post*

| ***Question*** | ***The Geriatric Workshop was worth my time in attending*** | ***I would recommend to my co-workers to attend the Geriatric Workshop if offered again*** | ***The Geriatric Workshop helped me in assessing/caring for my older adult patients*** |
|---|---|---|---|
| Mean ± SD | 6.41 ± 1.12 | 6.41 ± 1.17 | 6.27 ± 1.17 |

## Summary

Sixty-seven ED nurses participated in this study, with 44 in the experimental group and 23 in the control group. Forty-one of the experimental group and fifteen of the control group completed the immediate post-survey. Thirty-eight participants in the experimental group and 21 participants from the control group completed the four-week post-survey. The immediate post-survey participants for the control had the smallest retention rate, with only 15 out of 23 completing the survey. A higher retention rate was

achieved for both experimental and control groups for the four-week post-survey with 38 and 21. The experimental group reported that the workshop was beneficial in assessing and caring for older patients. The positive scores using the KOP tool between the experimental and control were found to not be statistically significant. Interestingly, the control group positive score was higher at pre-survey time point and stayed about the same over the four weeks. The experimental group did show an increase in their positive score at each data collection point. The knowledge score had a statistically significant increase in the experimental group after attending the geriatric workshop. The control group scores actually went down over the four-week period.

In running repeated measures of ANOVA to answer both hypothesis questions, results were found to not be statistically significant. For Hypothesis 1, ED nurses who received an educational intervention on geriatric nursing care did have higher overall aging knowledge scores when compared to the control group at immediate-post education intervention and four-week post-education intervention. However, findings were not statistically significant across time or between groups. For Hypothesis 2, ED nurses who received the educational intervention on geriatric nursing care did not have higher positive attitude scores than those ED nurses who did not receive the educational intervention. The control at baseline had a higher positive attitude score and at each data point continued to have a higher positive score than the intervention group. However, the intervention positive score did improve at each data point, but findings were not statistically significant when compared to the control group across time or between groups.

# CHAPTER V

# DISCUSSION

## Introduction

This chapter provides an overview of the problem, this study, a brief summary of the findings, and focuses on the discussion of these findings in relation to each of the concepts measured. This chapter will also discuss the implications of the findings for education, research, and practice.

## Overview of the Problem

Each year, the number and percent of older adults in the U.S. population increases. This shift has created a profound effect on the health care system especially the Emergency Departments (EDs). Older adults constitute about 15% of all ED visits and these older patients require extended and ongoing care. It is projected that by 2020 older adults seen in the ED will rise from 15% to 25% of all ED visits (CDC, 2013). Emergency department nurses are the primary care givers to the older adult population in EDs (Boltz, Parke, Shuluk, Capezuti & Galvin, 2013). Historically, the older adult patient has not been a preferred age group to care for by ED nurses. The reasons why they do not want to provide care for older patients include a lack of knowledge in caring for these patients, and their perceptions that they require too much time to care for in a busy ED (Lui, Norm, & While, 2013). Another reason why ED nurses do not want to care for older patients is that they present to the ED with more complex presentation of diseases and illnesses than any other

population due to a higher incidence of numerous cormorbities, polypharmacy, and functional impairments (Pines, Mullins, Cooper Feng, & Roth, 2013). Kihgren (2005) also reported that ED nurses felt that the older adult population is sent to the ED for inappropriate reasons causing them to not want to care for them.

## Purpose

The purpose of this study was to explore the effect of an educational intervention on attitudes and knowledge of emergency department (ED) nurses toward the older adult patient and their intentions to change their care behaviors toward this population in the ED.

This research study compared outcomes between the ED nurses who attended a four- hour geriatric workshop, which included three mini-lectures, and six interactive stations, to ED nurses who did not attend the educational offering. The mini-lectures included information on challenges of older adults in the ED, trauma in older adults and physiological changes in older adults. The six interactive stations were nutritional assessment of older adults, falls assessment on older adults, sensory changes in older adults, facts on aging, non-pharmalogical alternatives, and assessing older adults for dementia, delirium, and depression.

## Interpretation of Findings

This study of ED nurses' attitudes and their knowledge of older adults demonstrated several interesting findings. The participants had mean years of ED tenure of 11 years which is high since nationally the ED turnover rate is 21.7% (National Healthcare Retention Report, 2015). This study had a higher percent of white nurses (93%) when compared to state and national rates of 83.3% and 75.4% respectively (US Department of

Health and Human Services [HRSA], 2013; North Carolina Board of Nursing ([NCBON], 2014). The mean age of the participants was 40 years old, which is actually lower when compared to the state average of 43.3 and the national average of 44.6 (HRSA, 2013; NCBON, 2014). This study also had a slightly higher percentage of male participants (11.4%) compared to the state and national percentages of 7.5% and 9.1% respectively (HRSA, 2013; NCBON, 2014).

The percent of participants holding a bachelor's degree in nursing (56.7%) was similar to the national average of 55% (HRSA, 2013). This study also found out that 40% of the participants had a national certification, which is high when compared to the national rate of 35% (HRSA, 2013 and Alford et al. 2001) found that advanced nursing education can positively affect nurses' attitudes toward the older adult.

Eighty-one percent of ED nurses in this study reported they did not have any specialized geriatric training. This is consistent with the literature, which reports that ED nurses do not have geriatric specialized training (Samaras, Chevalle, Samaras & Gold, 2010). This study also found that approximately half of ED nurses graduated before 2005, which is before specialized stand-alone gerontology courses began being offered in nursing programs (Gills, MacDonald, & MacIassac, 2008). Only six percent of the ED nurses in this study held a geriatric certification. The low percentage of participants with specialized geriatric education could influence Palmore's Facts of Aging scores (Palmore, 1981).

**Research Question 1**

What are the attitudes of ED nurses toward older adults?

The current attitudes of ED nurses toward older adults using the Kogan's Attitudes Toward Old People tool at pre-intervention was found to have an overall mean positive score across groups. The positive score mean was 78.58 (*SD* = 8.85), compared to the mean negative attitude score of 44.61 (*SD*=11.4). This means that this sample of ED nurses had positive attitudes toward the older patient prior to the educational intervention. These results did not match what the literature was reporting. The literature identified that since the 1950's, registered nurses (RNs) had negative attitudes toward caring for older adult patients. A reason that these participants may have had higher positive attitudes toward the older patients is that three out of the five hospitals are a part of the NICHE program, meaning Nurses Improving Care for Health System Elders. The hospitals focus on improving care of the elderly and do provide continuing education on the older adult population. The hospital offers a geriatric symposium yearly that was held a few months before this study and any nurse in the system can attend. The literature also reported that nurses with higher education tend to have positive attitudes toward the older adult (Dube & Ducharme, 2014), and many of these participants had advanced nursing education. Another possible reason for having positive attitudes is that the participants that took part in this research study liked caring for older patients in the ED.

**Research Question 2**

What is the knowledge of ED nurses about older adults?

The current knowledge of ED nurses about older adults using the Palmore's Facts of Aging (PFAQ) tool pre-intervention demonstrated a mean knowledge score across groups of 13.84 (SD = 2.12) out of a possible highest score of 25. When comparing the participants' score to other health care professionals who had completed the PFAQ tool, this sample's score was lower (Callahan, 2011). The results did show that the offering of an educational intervention (Geriatric Workshop) did influence their overall knowledge score. The experimental group mean rose from 13.50 to 14.35, a four percent increase in answering the questions correctly. The overall ED knowledge score still remained lower when compared to another study which reported their participants' mean scores for social workers as 18.7 and public health workers' score as 17 (Callahan, 2011). The reason for ED nurses having a lower knowledge score could be due to that over half of them graduated before 2005 and the literature did report that most nurses who graduated before 2005 did not receive a stand-alone gerontology course. Another possible reason is that a majority of the education provided to ED nurses after employment is related to caring for the trauma patient or addressing how to expedite patient care, and does not focus on certain patient populations (Bolt et al, 2013). This geriatric workshop was the first one ever offered in the hospital system just for ED nurses. However, even though the mean knowledge score were lower when compared to other healthcare providers, this study validated that education improved knowledge concerning caring for older adults.

**Research Question 3**

What is the relationship between ED nurses' knowledge of the facts of aging and their attitudes toward older people before and after an educational intervention?

The scatter plots, along with Pearson's correlation (*r*) between knowledge and positive attitudes scores post intervention, did not show the relationship to be statistically significant at immediate post-intervention (p = 0.516) or at the 4 weeks post-post survey (p =0.414). The Pearson's correlation *(r) for* the experimental group at pre-intervention was *r* = 0.885, immediate post-intervention *r* = 0.104 and at 4-week post intervention *r* = 0.375. The correlation coefficient for these results showed there was a positive relationship at each time point between knowledge scores and positive attitudes scores with a range of +.01 to 1.00. (Polit, 2012). Even though the results were not statistically significant, several studies reported that nurses with increased gerontological education have improved attitudes toward older adults (Dube & Ducharme, 2014; Tavare & Silva, 2013: Zampieron, Saraiva, Corso, & Buja, 2012). The positive relationship found in this study does support that increased knowledge influences positive attitudes toward the older adult. In the same studies above, it was found that positive attitudes can be promoted through education about older adults, along with having educators that hold positive views about the older adult. The presenters at the geriatric workshop in this study could have influenced the relationship of increasing knowledge scores and positive attitudes scores by conveying their positive feelings toward older adults, and by providing educational information about older adults in a positive way.

**Research Question 4**

Will an educational intervention aid in identifying ED nurses' behavioral intentions to change how they care for older adults.

There were a total of five "I intend" questions asked about performing behaviors toward the older adult in the ED at pre-intervention, and the same five questions were at a 4 week-post intervention with the stem changing to "I have." The only question that showed a statistically significant difference between the experimental groups compared to the control group was BI question 10. This question was "I intend to voluntarily request to care for an older adult patient in the next 30 days" ($p = 0.03$). Specifically, 71% of the experimental group said they intended to request to care for an older adult patient and only 41% of the control group answered yes to this question. This is not a surprising result since those that attended the workshop probably had a stronger interest in caring for the older adult and did intend to request to care for an older adult patient. The reason the other 30% who said no, that they did not intend to voluntarily request to care for and older adult, supports what the literature cites, that ED nurses tend not to want to care for the older patient in the ED (CDC, 2013). For all BI questions, the experimental group had a higher percentage of yes versus no responses when compared to the control, implying that the educational intervention did influence their intentions to change their behavior in caring for older adult patients. Therefore, study results demonstrate that the educational intervention did influence ED nurses to change their behavior in assessing and caring for older adults.

**Hypothesis 1**

Emergency department nurses who receive an educational intervention on geriatric nursing care will have higher overall aging knowledge scores at immediate post education intervention and four weeks post education intervention than those ED nurses who do not receive the educational intervention.

In making these assumptions, data analysis revealed a main effect of time ($F(2,96) = 15.955$, $p = 0.003$), no main effects of experimental vs. control group ($F(1,48) = 1.717$, $p = 0.196$), and no significant interaction effects of group by time-point ($F(1.753,84.165) = 2.295$, $p = 0.114$). Over time after the educational intervention, the experimental group's knowledge scores did increase at each time point showing that providing geriatric education can improve knowledge scores. The control group knowledge score did not improve over time.

Dube and Ducharme's (2014) study reported that continuing education does have an influence on nurses' knowledge. The researchers provided an educational intervention to a group of nurses on reflective practice, and those that received the educational intervention showed improvement in their knowledge toward older adults when compared to a group that did not received the educational intervention. Another study by Desy and Prohaska (2008) reported that ED nurses who attended a geriatric education course demonstrated improvement in their knowledge scores and attitudes toward older adults. Even though this study results did not show to be statistically significant when comparing the groups, there was an improvement in knowledge scores of the experimental group over time. Even at four –weeks post intervention, their knowledge score remained higher than at pre-

intervention when compared to the control group. This is consistent with the literature review completed by Wietske, Schoonhoven, Schuurmans, Vegelers, and Leenen (2015) who cited that educational interventions have demonstrated to be effective transmitting new knowledge or delivering updates.

**Hypothesis 2**

Emergency department nurses who receive an educational intervention on geriatric nursing care will have higher positive attitude scores than those ED nurses who did not receive the educational intervention.

Making these assumptions, analysis revealed no main effects of time ($F(2,96) = 11.444$, $p = 0.001$), no main effects of experimental vs. control group ($F(1,48) = 0.118$, $p = 0.732$), and no significant interaction effects of group by time-point ($F(2,96) = 0.418$, $p = 0.660$). Even though the findings of this study were not statistically significant, the experimental group positive scores did improve overtime after the educational intervention, and their negative scores decreased overtime. Several studies cited that sustainability of outcomes may not be supported weeks after an educational offering has been completed (Scott, et al (2014); Wietske et al (2015). However, this study's results found that the influence of the educational intervention showed continuing improvement of ED nurses' positive attitude four-weeks later.

## Theory

The Theory of Planned Behavior (TBP) was the framework that guided this study. The TPB incorporates components that relate to attitudes and the ability to predict behaviors in the presence of certain attitudes. This theory has been useful in explaining ED

nurses' behaviors and intentions concerning caring for older adults. For this study the current attitudes of ED nurses were measured by using the Kogan Attitudes Toward Old People (KOP) tool. While not statistically significant, the results demonstrated that ED nurses had a mean positive attitude score of 77.93 (SD ± 9.12) prior to the educational intervention and at four weeks post the intervention their score increased to 81.89 (SD 8.29). Another construct of the TBP that guided this study was "perceived behavioral control," which is defined as having the presence of factors that either impede or facilitate a behavior change (Ajzen, 1991). For this study, those factors were the geriatric educational workshop that provided education on topics on how to assess and provide care to the older adult patient. The third concept used to guide the study was "intentions." The survey assessed ED nurses' intentions for providing care to older adults. Overall scores were higher for all questions when compared to the group that did not receive the educational intervention. The Behavioral Intention (BI) questions that were answered by the ED nurses and were driven from the Theory of Planned Behavior (TPB) demonstrated that their intentions to change their behavior in caring for older adults was influenced by the educational intervention when compared to the control group who did not intend to change their behavior. Reported in the four-week post education intervention survey, 54% of the experimental group compared to 38% of the control group actually volunteered to care for an older adult patient. Cited in the National Alliance for Caregiving and AARP (2012), more women than men are caregivers. Ninety- seven percent of the experimental group, compared to 90% of the control group, reported that they had purposefully focused on ensuring their ED environment and patient rooms were safe for the older adult patient.

Ninety-five percent of both groups at the four-week post intervention reported that they performed a falls assessment on their older adult patients. The experimental group did report a statistically higher percentage of yes (57%) compared to the control group (38%) that they had assessed their older adult patients for the need to have a nutritional consult. The intervention group received the educational information of why and how to assess their older patient for the need to have a nutritional consult whereas the control group did not, and their scores got worse. Surprisingly, the control group reported a slightly higher percent of yes (90%) compared the experimental group (89%) that they had assessed their older adult patient for signs of depression, dementia and delirium. However, a majority of the experimental group responses (80%) reported that the educational intervention did influence a change in behavior in caring for older adults.

## Limitations

Before discussing recommendations, it is important to discuss several limitations of this study. One of the greatest limitations in this study was the use of a non-randomized convenience sample, which limits generalizability. Another limitation is that this research study was limited to ED nurses from five EDs within one large health system in a single state, which was also limits generalizability. The surveys were electronically sent out to participants at three time points, at the same time, for both the experimental and control groups. The time points were one day prior to the education geriatric workshop, at eleven o'clock the day of the geriatric workshop, and four-weeks post-post the workshop. The offering of the geriatric workshop also fell in the same week as Thanksgiving even with asking for educational rooms six months prior, which caused the four-week post-post

survey to fall during the week of Christmas. The holiday timeframe may have limited participation in the workshop and surveys. Another limitation that may have influenced the number of participants in the control group was that the hospital server blocked the emails that provided the link for the participants to complete the survey at all three data point collection. A phone call was made to each ED to inform participants to go to their junk mail and not their clutter mail to retrieve the email to complete the survey. In addition, a separate email was sent to them to let them know where to locate the survey. However, due to the blocking of the email the surveys were left open for two weeks, and email reminders were sent out to encourage participants in the control group to complete the research surveys. Another limitation to recruiting participants for the control was that many were likely working, and they did not have time or got interrupted due to patient care needs. This limitation is suggested because four participants opened up the survey but did not complete any part of the survey; they were deleted from the total. For the nurses working, the research participation could have been extra work they did not want to do or feel they had time to complete. Additionally, the experimental group survey email was also sent to their junk mail but they were able to be told the morning of the workshop. They completed the pre and immediate post survey the day of the geriatric workshop.

The Qualtrics software used to build the survey and distribute to participants also caused a huge glitch in having missing data on behavioral intention questions. The process counter in Qualtrics did not allow the questions to open up to random participants in the experimental group in the pre and immediate post surveys. The email link that was sent out directly from Qualtrics was also a little cumbersome because some of the participants

reported that the link would not open the survey and they had copy and paste it into the toolbar to open the survey.

Finally, ED nurses' motivation in participating in the study could also be a limitation of the research. The nurses did not get paid to attend the workshop, in fact four nurses once they realized they were not getting paid emailed and canceled their registrations. These nurses actually shared in their email the reason for not attending was because they were not getting paid. The flyer that was sent out to recruit participants did state their participation was voluntary and they would not be paid. The flyer also reminded the participants that by attending the workshop that they would be eligible for four continuing education hours that could be used toward stroke and trauma hours. Participants were also informed that there would be door prizes drawn throughout the workshop along with a hot breakfast. The flyer provided information that if they could not attend the workshop they would still be eligible to participate and have it considered as one of their requirements for their annual evaluation and that they would be included in a $50.00 drawing at the end of the four-week post-post survey. It is possible that the ED nurses took part in the study because they were eligible for financial gain and there did not pay as close attention to the educational intervention. Another possibility is that they felt pressured into taking part in the study because they knew that it was a colleague and because other ED nurses/ friends were taking part. This too could have played a part in differences in motivation, which could then have affected the outcome of the study. It is also possible that the ED nurses who volunteered to attend the workshop for the study had

more of an interest in learning about older adults than those who chose not to attend the geriatric workshop.

## Recommendations

### Educational

This study demonstrated that an educational intervention design to improve ED nurses' care of older adults was successful in regards to behavioral changes, overall aging knowledge, and positive attitudes. Because EDs are likely to see continued increase in their older adult patient population, it is strongly recommended that other EDs consider providing educational interventions for their nurses. There is also a need for future research on educational interventions concerning older adults.

### Research

Based on the limitations stated above, a recommendation for future research is to use a randomized sample of participants. While this research did a trial run with Qualtrics and encountered no problems, researchers should assure that Qualtrics will properly release survey questions to all participants. Another recommendation for researchers is to consider other ways which adults learn, perhaps using a different knowledge scoring tool, since the Cronbach alpha was 3. 27 for the PFAQ, and the verbiage of the tool needs to be more applicable for the 21st century generation. Future researchers should consider doing a qualitative study to be able to get more information from ED nurses on exactly what is their knowledge gap in caring the older adult patient, and what influences their attitudes in caring for older adults.

**Practice**

There is a need for specialized continuing educational programs offered throughout the year in the hospital settings. The increasing visits to the ED by the older population, which is projected to almost double by 2030 (CDC, 2013), warrants the need to provide educational offerings on older adult care. The ED leadership needs to support nurses in obtaining their geriatric certification. This study showed that out of 67 ED nurses, only six percent had their geriatric certification. Hospital administration needs to become more responsible to providing resources such as educational classes, equipment such as stretcher alarms, sitters for confused older adults, and a specialized geriatric ED to help ED nurses care for this fastest growing patient population in the ED.

## Conclusions

The most exciting findings of this study was that it showed that a lot can be done in regards to conveying aging related knowledge to ED nurses in a very short period of time. The fact that the BI measures showed that their intentions to perform behaviors toward the older adult patient after attending a short four-hour educational intervention was actually implemented into practice showed that the information learned was retained, and impacted a behavior change. While no significant differences were found between the means of the experimental group and the control group for both the knowledge scores and attitude scores, the results did show that the experimental group scores did improve after attending the workshop for both attitudes and knowledge.

The findings of this study also suggest that the use of an educational intervention (geriatric workshop) alone may not be enough to increase overall aging knowledge and

improve positive attitudes toward older adults among ED nurses. However, it does suggest that adding structured mini lectures along with interactive educational stations to an educational intervention is an easy way to produce positive results.

Lastly, this study results did not have a statistically significant impact on behavior changes or attitudes and knowledge of ED nurses on older adults but did show that those who received the educational intervention had improved attitudes and knowledge concerning older adults. The educational offering was found to be well received by the ED nurses who attended the geriatric workshop. Participants also reported that the educational workshop has helped them with assessing and caring for their older adults in their ED setting. Finally, the TPB was found to be useful in guiding this study of ED nurses' attitudes, knowledge and behavior change in caring for older adults. It is vital to recognize motivational intentions that impact behavioral changes.

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APPENDIX A

UNCG IRB APPROVAL

**To**: Denise Rhew
School of Nursing
School of Nursing, Moore Building, Campus, Greensboro, NC 27402-6170

**From**: UNCG IRB

**Date**: 1/13/2016

**RE**: Notice of IRB Exemption
**Exemption Category**: 4.Existing data, public or deidentified
**Study #:** 16-0004

**Study Title**: Secondary Data Analysis for a Cone Health Educational Program Conducted for Emergency Department (ED) Nurses

This submission has been reviewed by the IRB and was determined to be exempt from further review according to the regulatory category cited above under 45 CFR 46.101(b).

**Study Description:**

To explore the effect of an educational intervention (Geriatric Workshop) provided on Cone Health ED nurses regarding attitudes and knowledge on older adults

**Investigator's Responsibilities**

Please be aware that any changes to your protocol must be reviewed by the IRB prior to being implemented. Please utilize the most recent and approved version of your consent form/information sheet when enrolling participants. The IRB will maintain records for this study for three years from the date of the original determination of exempt status.

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. **Stamped consent forms must be used unless the IRB has given you approval to waive this requirement.** Please notify the ORI office immediately if you have an issue with the stamped consents forms.

Please be aware that valid human subjects training and signed statements of confidentiality for all members of research team need to be kept on file with the

lead investigator. Please note that you will also need to remain in compliance with the university "Access To and Retention of Research Data" Policy which can be found at http://policy.uncg.edu/research_data/.

CC:
Susan Letvak, School of Nursing

APPENDIX B

CONE HEALTH IRB APPROVAL

CONE HEALTH
Institutional Review Board

1200 N. Elm Street
Greensboro NC 27401
336.832.2330

**OFFICE OF RESEARCH SUPPORT**
**THE INSTITUTIONAL REVIEW BOARD (IRB)**
**COMMITTEE FOR HUMAN RESEARCH PROTECTIONS**
**MEMORANDUM**

**DATE:** November 2, 2015

**TO:** Denise Rhew, MSN, RN CNS, CEN; Principal Investigator

**FROM:** Charles H. Wilson, MD; Chairman, Institutional Review Board (FWA00004507)

**RE:** **Exempt IRB #2002,** Emergency Nurses' Attitudes and Knowledge toward Older Adult Patients

The above study has been reviewed by the Chairman of the Institutional Review Board and it has been determined that it is exempt from IRB consideration on the basis that it poses no risk to human subjects.

**Note:**

(1) This Committee complies with the requirements found in Part 56 of the 21 Code of Federal Regulations and Part 46 of the 45 Code of Federal Regulations.

(2) Re-review of this proposal is necessary if any significant alterations or additions to the protocol are made

(3) It is required that all consent forms be retained on file.

This exemption will be announced at the next meeting of the IRB and will be recorded in the minutes accordingly. Thank you for your research protocol submission and best of luck on your project.

---

***For IRB completion and return to Principal Investigator:***

Signature of Cone Health IRB Chairman Charles Wilson MD Date 11/2/2015

APPENDIX C

LETTER FROM CNO CONE HEALTH

CONE HEALTH
The Network for Exceptional Care

1200 North Elm Street
Greensboro, NC 27401-1020
336.832.7000

November 11, 2015

The University of North Carolina at Greensboro
Attn: IRB Committee
1400 Spring Garden Street
Greensboro, NC 27412

Re: Letter of Agreement not to request Information

To Whom It May Concern,

I am writing this letter upon request to inform the IRB committee at the University of North Carolina at Greensboro that the Administrative leadership at Cone Health will not request Denise Rhew to share participant (employee) results from her study on Emergency Nurses' Attitudes and Knowledge toward Older Adults.

Sincerely,

Theresa Brodrick

Theresa Brodrick, RN, PhD
Executive Vice President & Chief Nursing Officer

APPENDIX D

SAVE THE DATE EMAIL

From:
To:
Cc:
Date:
Subject: For ED RNs Only SAVE-THE-DATE Nov. 23rd

To all ED RNs, I am sending this email out to let you know of a great opportunity to Get Contact hours and attend a Great Geriatric ED focus Workshop!
I am working on my PhD at UNCG and will be offering a 4-5 hour Educational Workshop on Hot topics regarding our Fast Growing Geriatric patient population!

Date: Monday Nov. 23rd ( I am in the process of going to the Research Committee and to IRB approval to offer this Workshop). I am asking you to save the date because the new schedule may come out and I wanted you to be aware of this potential education opportunity!

Where: Staff Education 200 Northwood St Greensboro NC 4thfloor

I really need you to attend this workshop to help me to be able to implement my research study!

Did you know that everyday 10,000 Americans turn 65 years old.
Did you know that it is projected that by 2030 there will be a ratio of 5 older adults to 1 teenage in the U.S.
Did you know that every 13 seconds an Older Adult will fall and every 20 minutes an older adult that falls dies
Did you know that 61/100 patients we see are Older Adults 65> in our EDs

Please post attached flyer in your department and remind your fellow nurses to SAVE-The-Date NOV. 23rd.

More information will follow in regards to when the Class will posted so you can Sign-up in HLC and by Signing up to attend the Workshop is implying your consent to participant in the Research Study.

Denise Rhew, MSN, RN, CNS, CEN

APPENDIX E

GERIATRIC WORKSHOP INFORMATION EMAIL

From:
To:
Cc:
Date: Thu, 19 Nov 2015 15:59:47 +0000
Subject:Geriatric Workshop Monday 23rd Information

Good morning everyone, I just want to take the time to tell you all THANK YOU from the bottom of my HEART for your willingness to attend the Geriatric Workshop this Monday Nov. 23rd located at Staff Education here in Greensboro 200 Northeast st 8a-12:15.

Just wanted to let you know You are welcome to come early Breakfast will be ready by 7:30, Please be there no later than 8a!

Important!!! You will receive an email on Sunday Nov. 22nd afternoon from Me (Denise RHEW) with the link to take the Pre-Survey. You can take it before you arrive on Monday or You can wait and take it Monday Morning. I have reserve room 501 for you to be able to access your Cone Health email as soon as you arrive. Please come to room 438 when you arrive at Staff ED.

I plan to have you out no later than 12:15 on Monday!

Thank you again, If you have any problems call my cell!

Denise Rhew, MSN, RN, CNS, CEN
**Cone Health** | Emergency Services
**Clinical Nurse Specialist**
Direct Dial: 336. 832-4572
Cell: 336. 687-6605

APPENDIX F

SIGN UP NOW ED GERIATRIC WORKSHOP

# Sign-Up Now in HLC!
# November 23rd, 2015
# Emergency Department
# Geriatric Workshop

# For ED RNs only at this time!

**Why Attend:**

- **Free Contact hours (4) (Trauma and Stroke Hours)**
- **Great ED Focus Geriatric Lectures**
- **Interactive Geriatric Educational Stations**
- **Breakfast**
- **Great Door Prizes**

❖ **Help Denise Rhew ED CNS complete her** Research study for her PhD program

**When/Where: Staff Education- 4th floor Date: Nov. 23rd 2015 Time: 8a-12n**

- **Please try to sign-up and attend but if you cannot, and want to be a part of this RESEARCH study "Send me" your email address and I will send you the Pre-Survey and Post-Survey that you must complete on NOV. 23rd!**
- denise.rhew@Conehealth.com
- **There will be door prizes drawn for those who cannot attend but complete all 3 surveyors! The last survey will be sent out for you to complete, the week of December 21st!**

APPENDIX G

AGENDA

Agenda

Emergency Nurses' Attitudes and Knowledge of the Older Adults

| Topic: | Time: | Speaker: |
|---|---|---|
| Welcome | 8:00- 8:05 | Denise |
| 1. Discuss Challenges in Caring for the older patient in the emergency department. | 8:05-8:35 | |
| 2. Discuss Trauma in the older adult | 8:35-9:05 | Nancy |
| 3. Discuss Physical Changes in the older adult and Atypical disease presentations to the Emergency department. | 9:05-9:35 | Brenda |
| Break | 9:35-9:45 | |
| 4. Discuss Nutrition in the Elderly | 9:45- 12:00 | Maggie |
| 5. Discuss Nonpharmacological Interventions Available | | Beth |
| 6. Discuss how to assess Falls in the older adults | | Tracy |
| 7. Identify Facts on Aging | | Nancy |
| 8. Review Ageism and Sensitivity among the older adult | | Susan |
| 9. Discuss the 3 D's in the older adult patient in the Emergency setting | | Brenda |
| 10. Questions and Answers/ Break/Take Surveys | 12:00-12:15 | Denise |

# APPENDIX H

## KOGAN/PALMORE SURVEY

Kogan/Palmore Survey Nov/Dec 15

Q1 Attitude Towards Old People/Facts of Aging Survey  Thank you for taking the time to complete the surveys. There are 4 parts to the survey consisting of 74 questions that should take you between 15- 20 minutes to complete.  Your participation is completely voluntary and you have the right to refuse to participate or to withdraw at any time, without penalty. The completion of the survey indicates your consent to participate. The information you and others provide will be helpful to nursing and hospital educators by helping us assess knowledge and attitudes toward the older adult patient seen in the emergency department.

Q2 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| It would probably be better if most old people lived in residential areas with younger people. (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people are really no different from anybody else, they're easy to understand as younger people. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people are capable of new adjustments when the situation demands it. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q3 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| It would probably be better if most old people lived in residential units with people of their own age. (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| There is something different about most old people; it's hard to find out what makes them tick. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people can generally be counted on to maintain a clean, attractive home. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| People grow wiser with the coming of old age. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Old people should have power in business and politics. (5) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q4 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| Most old people get set in their ways and are unable to change. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people are very relaxing to be with. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people would prefer to quit work as soon as pensions or their children can support them. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences. (5) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q5 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| Most old people tend to keep to themselves and give advice only when asked. (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people tend to let their homes become shabby and unattractive. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| It is foolish to claim that wisdom comes with age. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| When you think about it, old people have the same faults as anybody else. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Old people have too much power in business and politics. (5) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q6 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| You can count on finding a nice residential neighborhood when there are a sizeable number of old people living in it. (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people make one feel ill at ease. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| It is evident that most old people are very different from one another. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people bore others by their insistence on talking about the good old days. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q7 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| Most old people seem quite clean and neat in their personal appearance. (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people spend too much time prying into affairs of others and giving unsought advice. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people are cheerful, agreeable and good humored. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| If old people expect to be liked, their first step is to try to get rid of their irritating faults. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q8 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it. (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| There are a few exceptions, but in general, most old people are pretty much alike. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| One seldom hears old people complaining about the behavior of the younger generation. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people need no more love and reassurance than anyone else. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q9 Part 1: Attitude Questions - Using the Likert scale below, please choose if you strongly disagree to strongly agree with the statements:

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| Most old people should be more concerned with their personal appearance; they are too untidy. (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people are irritable, grouchy, and unpleasant. (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people are constantly complaining about the behavior of the younger generation. (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| Most old people make excessive demands for love and reassurance more than anyone else. (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

Q10 Part 2: Facts of Aging Questions - Please answer True or False to the following statements:

| | True (1) | False (2) |
|---|---|---|
| The majority of old people (age 65+) are senile. (1) | ❍ | ❍ |
| The five senses (sight, hearing, taste, touch, and smell) all tend to weaken in older age. (2) | ❍ | ❍ |
| The majority of old people have no interest in, nor capacity for, sexual relations. (3) | ❍ | ❍ |
| Lung vital capacity tends to decline in old age. (6) | ❍ | ❍ |
| The majority of old people feel miserable most of the time. (7) | ❍ | ❍ |
| Physical strength tends to decline in old age. (8) | ❍ | ❍ |
| At least one tenth of the aged are living in long-stay institutions (such as nursing homes, mental hospitals, homes for the aged). (10) | ❍ | ❍ |

Q11 Part 2: Facts of Aging Questions - Please answer True or False to the following statements:

| | True (1) | False (2) |
|---|---|---|
| Aged drivers have fewer accidents per driver than those under age 65. (1) | ❍ | ❍ |
| Older workers usually cannot work as effectively as younger workers. (2) | ❍ | ❍ |
| Over three-fourths of the aged are healthy enough to do their normal activities with out help. (11) | ❍ | ❍ |
| The majority of old people are unable to adapt to change. (6) | ❍ | ❍ |
| Old people usually take longer to learn something new. (7) | ❍ | ❍ |
| It is almost impossible for most older people to learn new things. (8) | ❍ | ❍ |

Q12 Part 2: Facts of Aging Questions - Please answer True or False to the following statements:

| | True (1) | False (2) |
|---|---|---|
| Older people tend to react slower than younger people. (10) | ❍ | ❍ |
| In general, old people tend to be pretty much alike. (16) | ❍ | ❍ |
| The majority of old people say they are seldom bored. (17) | ❍ | ❍ |
| The majority of old people are socially isolated. (18) | ❍ | ❍ |
| Older workers have fewer accidents than younger workers. (19) | ❍ | ❍ |
| Over 20% of the population is now 65 and older. (20) | ❍ | ❍ |

Q13 Part 2: Facts of Aging Questions - Please answer True or False to the following statements:

| | True (1) | False (2) |
|---|---|---|
| The majority of medical practitioners tend to give low priority to the aged. (10) | ❍ | ❍ |
| The majority of old people have incomes below the poverty line (defined by the federal government). (16) | ❍ | ❍ |
| The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work). (21) | ❍ | ❍ |
| Old people tend to become more religious as they age. (18) | ❍ | ❍ |
| The majority of old people say they are seldom irritated or angry. (19) | ❍ | ❍ |
| The health and economic status of old people will be about the same or worse in the year 2016 (compared to younger people). (20) | ❍ | ❍ |

Q14 Part 3: Behavior Intention Questions - Please answer Yes or No to the following questions:

| | Yes (1) | No (2) |
|---|---|---|
| I intend to voluntarily request to care for an older adult patient in the next 30 days. (10) | ❍ | ❍ |
| I intend to purposefully focus on providing a safe room/environment for older adult patients in the next 30 days. (16) | ❍ | ❍ |
| I intend to perform a falls assessment on my older adult patients in the next 30 days. (21) | ❍ | ❍ |
| I intend to assess my older patients' need for a nutritional consult in the next 30 days. (18) | ❍ | ❍ |
| I intend to assess my older adult patients for signs of depression, dementia, and delirium in the next 30 days. (20) | ❍ | ❍ |

Q15 Part 3: Behavior Intention Questions - Please answer Yes or No to the following questions:

| | Yes (1) | No (2) |
|---|---|---|
| I have voluntarily requested to care for an older adult patient within the last 30 days. (10) | ❍ | ❍ |
| I have purposefully focused on providing a safe room/environment for older adult patients within the last 30 days. (16) | ❍ | ❍ |
| I have performed a falls assessment on my older adult patients within the last 30 days. (21) | ❍ | ❍ |
| I have assessed my older patients' need for a nutritional consult within the last 30 days. (18) | ❍ | ❍ |
| I have assessed my older adult patients for signs of depression, dementia, and delirium within the last 30 days. (20) | ❍ | ❍ |

Q16 Part 4: Demographics - For the following questions, please select one response that is most descriptive of you or fill in information as instructed.

Q17 Please choose your gender.
- ❍ Male (1)
- ❍ Female (2)

Q18 What is your age?

Q19 What is your ethnicity?
- ❍ Black (1)
- ❍ White (2)
- ❍ Hispanic (3)
- ❍ Asian (4)
- ❍ Other (5)

Q20 What is your highest level of education achieved?

- ❍ Diploma (1)
- ❍ Associate (2)
- ❍ Bachelors (3)
- ❍ Masters (4)
- ❍ DNP (5)
- ❍ PhD (6)

Q21 How many years have you worked in the ED as an RN?

Q22 Certification and Experience

| | Yes (1) | No (2) |
|---|---|---|
| Did you graduate from nursing school before 2005? (1) | ❍ | ❍ |
| Do you have a national nursing certification? (2) | ❍ | ❍ |
| Do have a geriatric certification? (3) | ❍ | ❍ |
| Do you have specialized older adult work experience? (4) | ❍ | ❍ |
| Are you currently providing care for elderly individuals in your home? (5) | ❍ | ❍ |

Q23 What is your employee ID number?